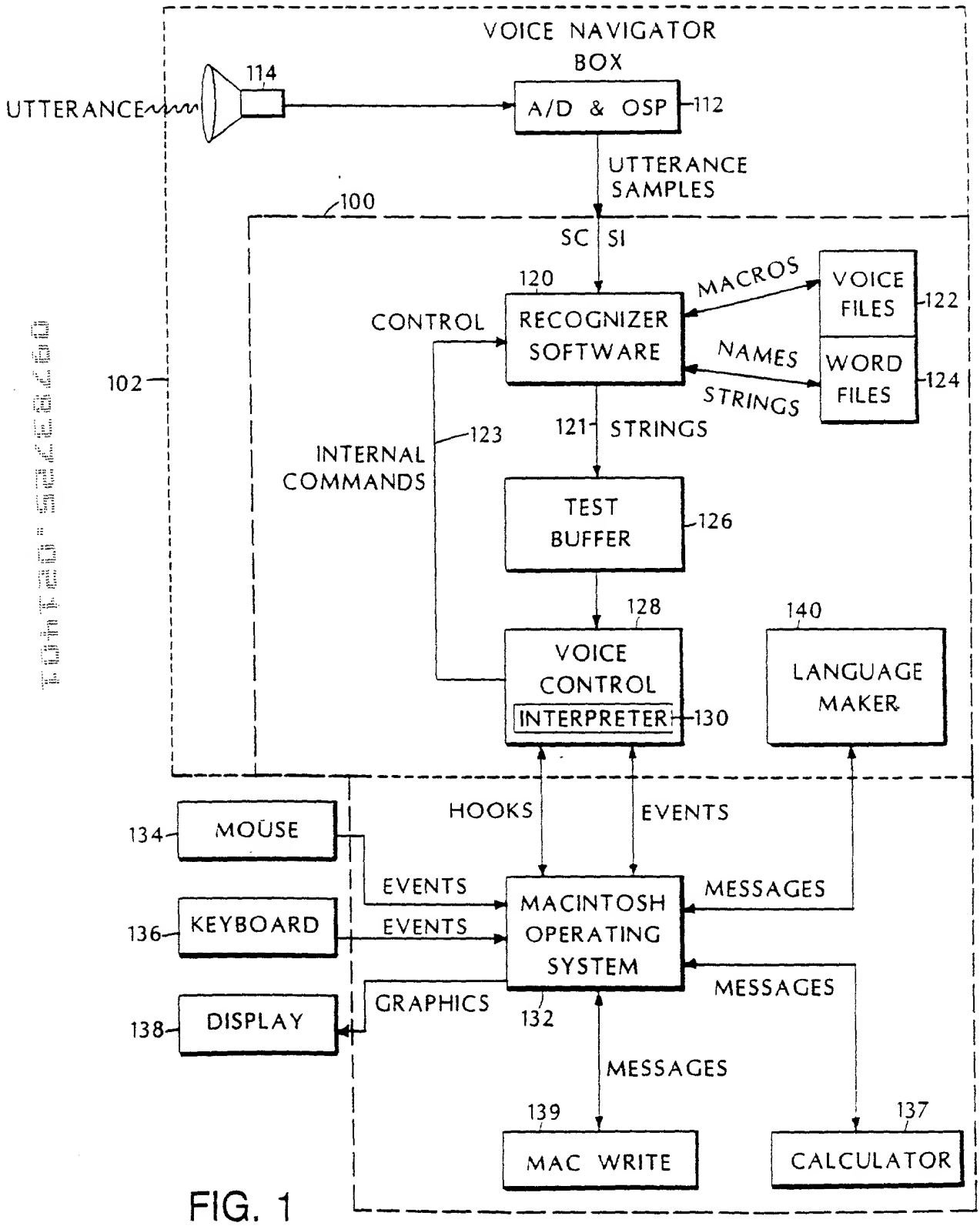

VOICE NAVIGATOR BOX
UTTERANCE
114
A/D & OSP
112
UTTERANCE SAMPLES
100
SC
SI
120
RECOGNIZER SOFTWARE
MACROS
VOICE FILES
122
CONTROL
NAMES
WORD FILES
124
STRINGS
102
121
STRINGS
123
INTERNAL COMMANDS
TEST BUFFER
126
128
140
VOICE CONTROL
INTERPRETER
130
LANGUAGE MAKER
HOOKS
EVENTS
134
MOUSE
EVENTS
MESSAGES
136
KEYBOARD
EVENTS
MACINTOSH OPERATING SYSTEM
MESSAGES
GRAPHICS
138
DISPLAY
132
MESSAGES
139
137
MAC WRITE
CALCULATOR

FIG. 1

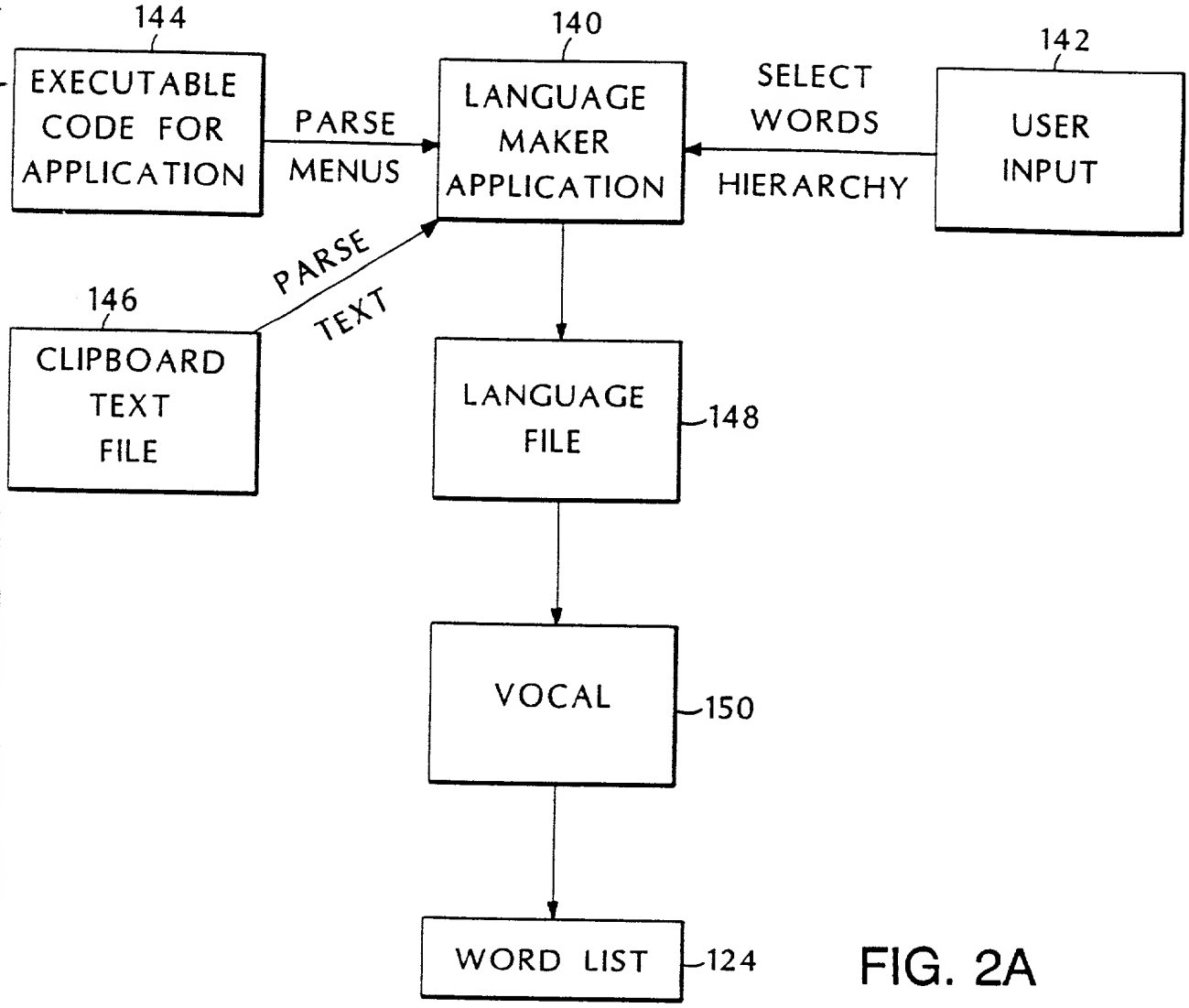

144
EXECUTABLE CODE FOR APPLICATION
PARSE MENUS
140
LANGUAGE MAKER APPLICATION
SELECT WORDS
HIERARCHY
142
USER INPUT
146
CLIPBOARD TEXT FILE
PARSE TEXT
LANGUAGE FILE
148
VOCAL
150
WORD LIST
124

FIG. 2A

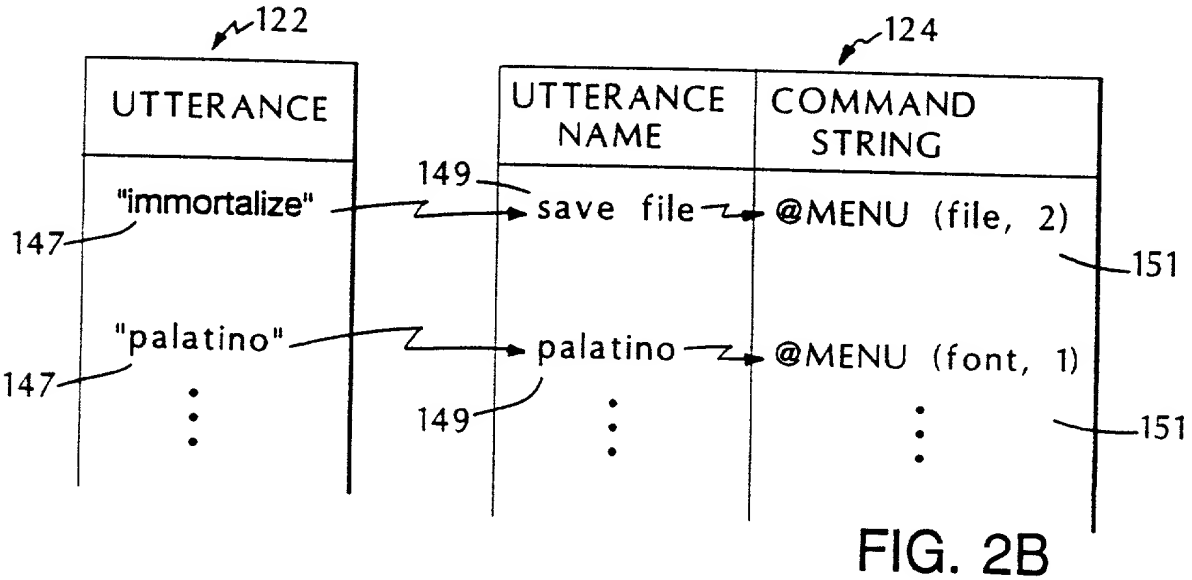

122
UTTERANCE
"immortalize"
147
"palatino"
147
124
UTTERANCE NAME
COMMAND STRING
149
save file
@MENU (file, 2)
151
palatino
@MENU (font, 1)
149
151

FIG. 2B

Tom Tom '92 28260

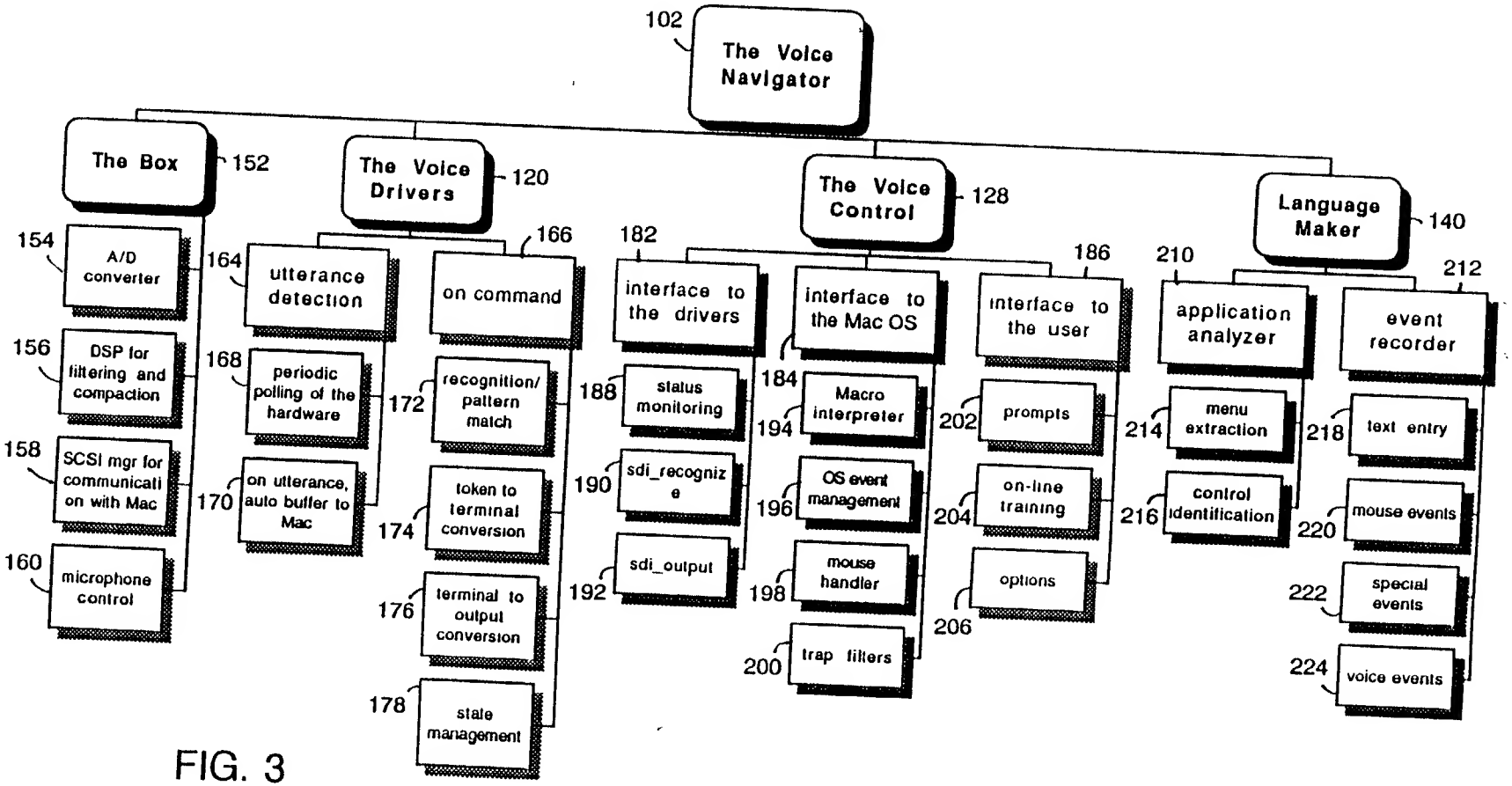


FIG. 3

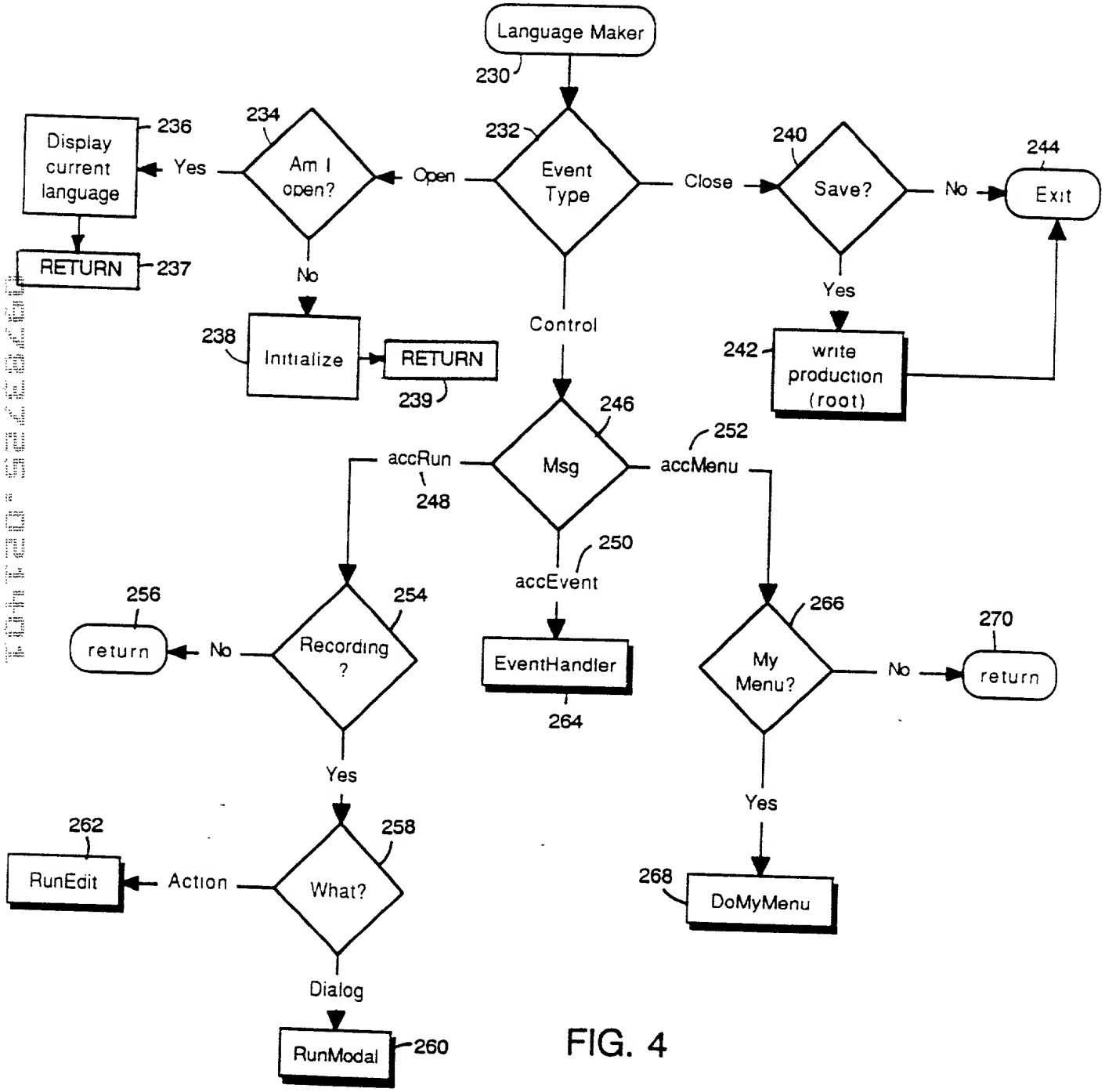

Language Maker
230
Event Type
232
Open
Close
Am I open?
234
Yes
No
Display current language
236
RETURN
237
Initialize
238
RETURN
239
Save?
240
No
Exit
244
Yes
write production (root)
242
Control
Msg
246
accRun
248
accMenu
252
accEvent
250
EventHandler
264
Recording ?
254
No
return
256
Yes
What?
258
Action
RunEdit
262
Dialog
RunModal
260
My Menu?
266
No
return
270
Yes
DoMyMenu
268

FIG. 4

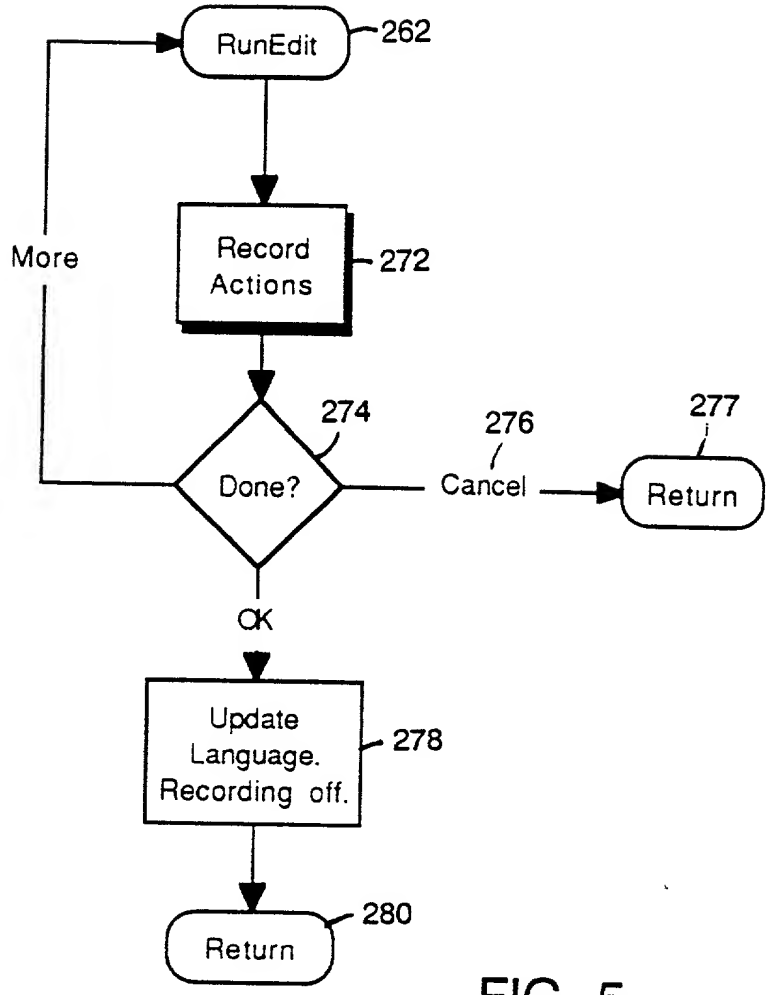

RunEdit
262
Record Actions
272
More
274
Done?
276
Cancel
277
Return
OK
Update Language. Recording off.
278
Return
280

FIG. 5

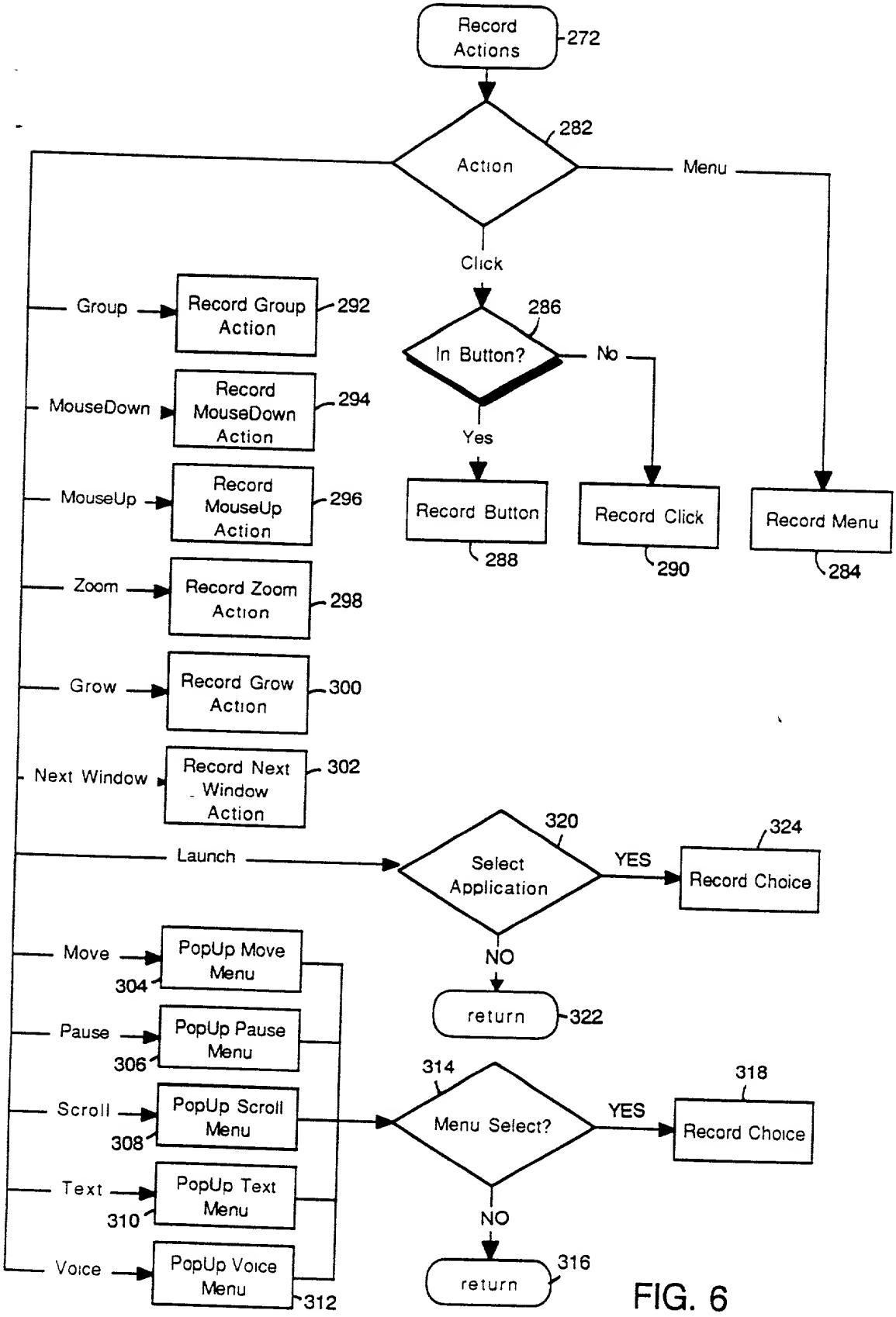

Record Actions
272
Action
282
Menu
Click
Group
Record Group Action
292
In Button?
286
No
Yes
MouseDown
Record MouseDown Action
294
MouseUp
Record MouseUp Action
296
Zoom
Record Zoom Action
298
Grow
Record Grow Action
300
Next Window
Record Next Window Action
302
Record Button
288
Record Click
290
Record Menu
284
Launch
Select Application
320
YES
Record Choice
324
NO
return
322
Move
PopUp Move Menu
304
Pause
PopUp Pause Menu
306
Scroll
PopUp Scroll Menu
308
Text
PopUp Text Menu
310
Voice
PopUp Voice Menu
312
Menu Select?
314
YES
Record Choice
318
NO
return
316

FIG. 6

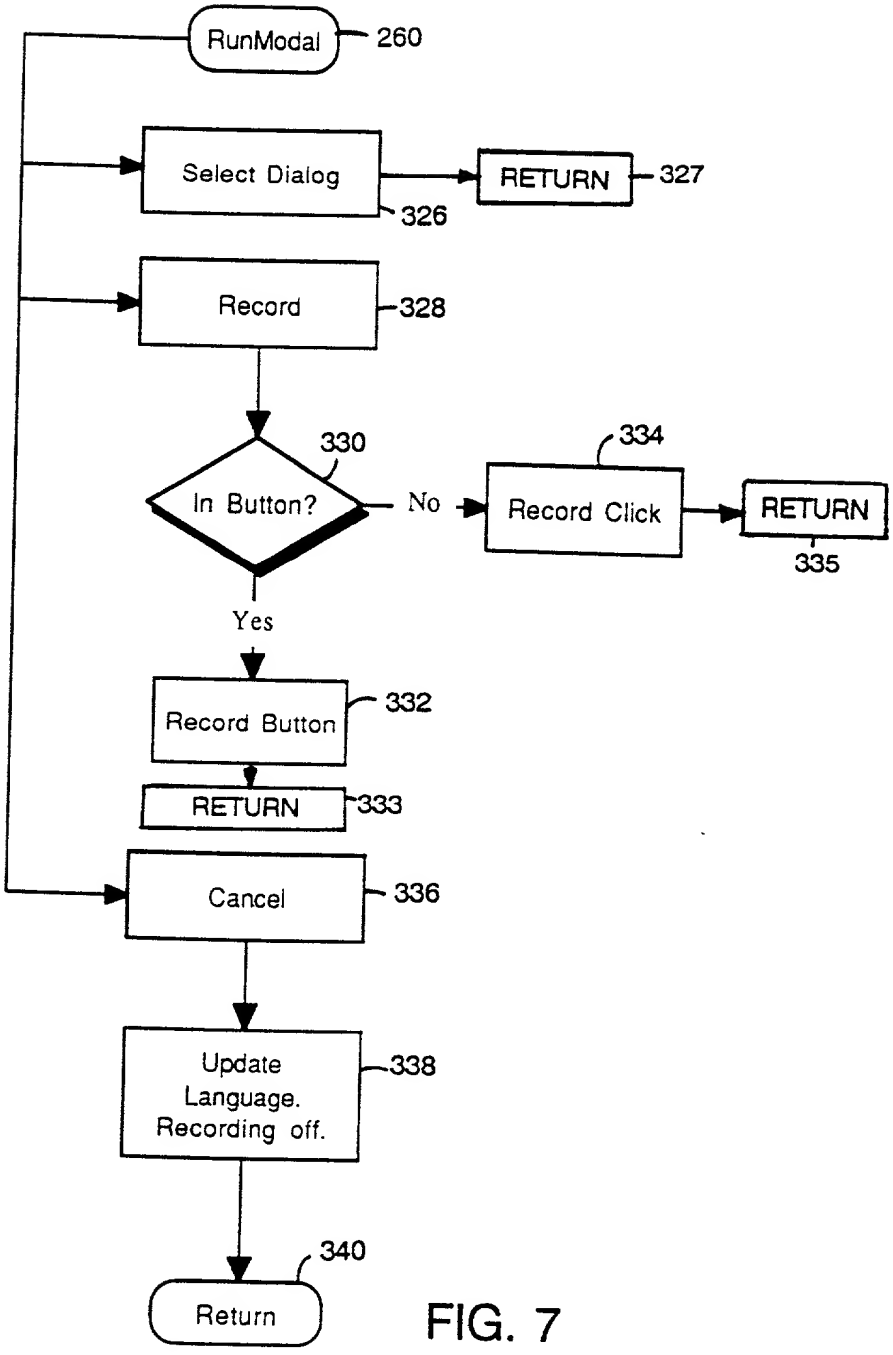

RunModal
260
Select Dialog
326
RETURN
327
Record
328
330
In Button?
No
334
Record Click
RETURN
335
Yes
Record Button
332
RETURN
333
Cancel
336
Update
Language.
Recording off.
338
340
Return

FIG. 7

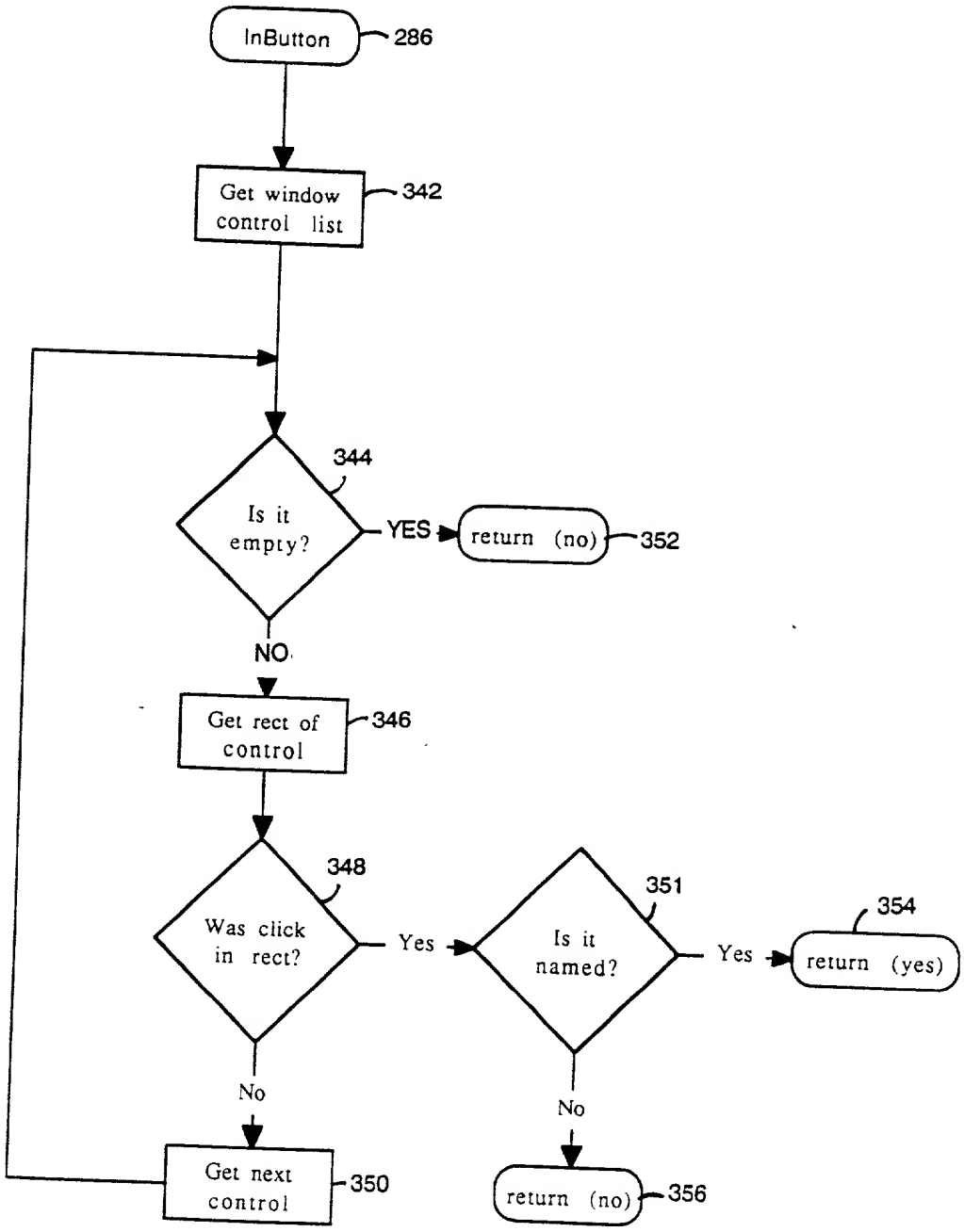

InButton
286
Get window control list
342
344
Is it empty?
YES
return (no)
352
NO
Get rect of control
346
348
Was click in rect?
Yes
351
Is it named?
Yes
354
return (yes)
No
No
Get next control
350
return (no)
356

FIG. 8

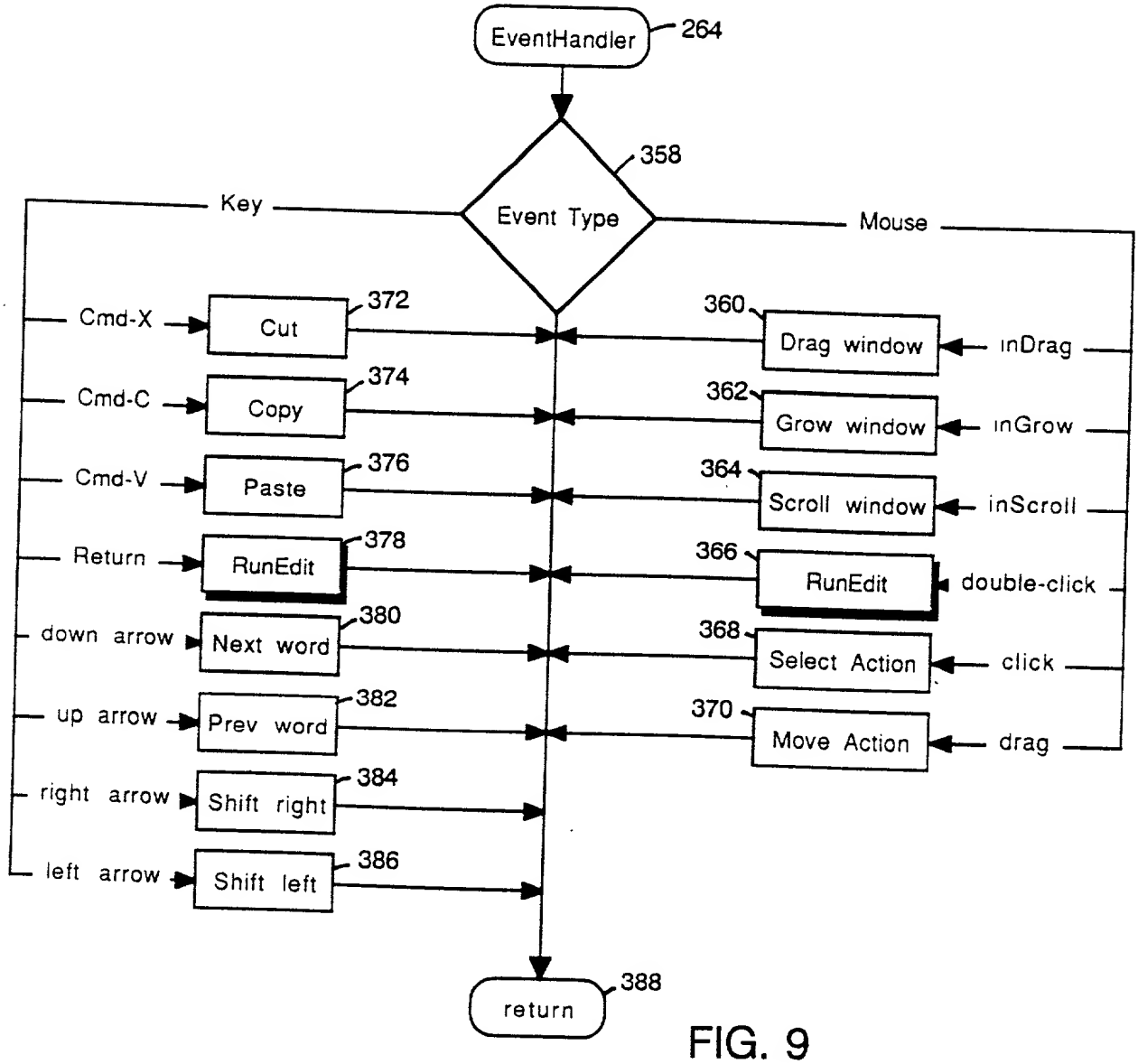

EventHandler
264
Event Type
358
Key
Mouse
Cmd-X
Cut
372
Cmd-C
Copy
374
Cmd-V
Paste
376
Return
RunEdit
378
down arrow
Next word
380
up arrow
Prev word
382
right arrow
Shift right
384
left arrow
Shift left
386
Drag window
360
inDrag
Grow window
362
inGrow
Scroll window
364
inScroll
RunEdit
366
double-click
Select Action
368
click
Move Action
370
drag
return
388

FIG. 9

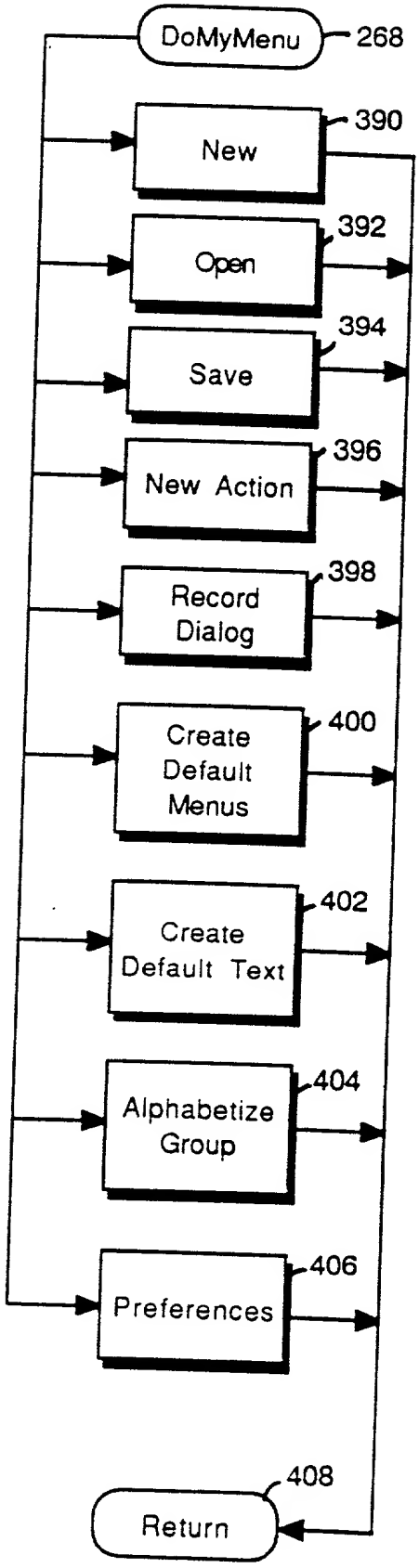

DoMyMenu
268
New
390
Open
392
Save
394
New Action
396
Record Dialog
398
Create Default Menus
400
Create Default Text
402
Alphabetize Group
404
Preferences
406
Return
408

FIG. 10

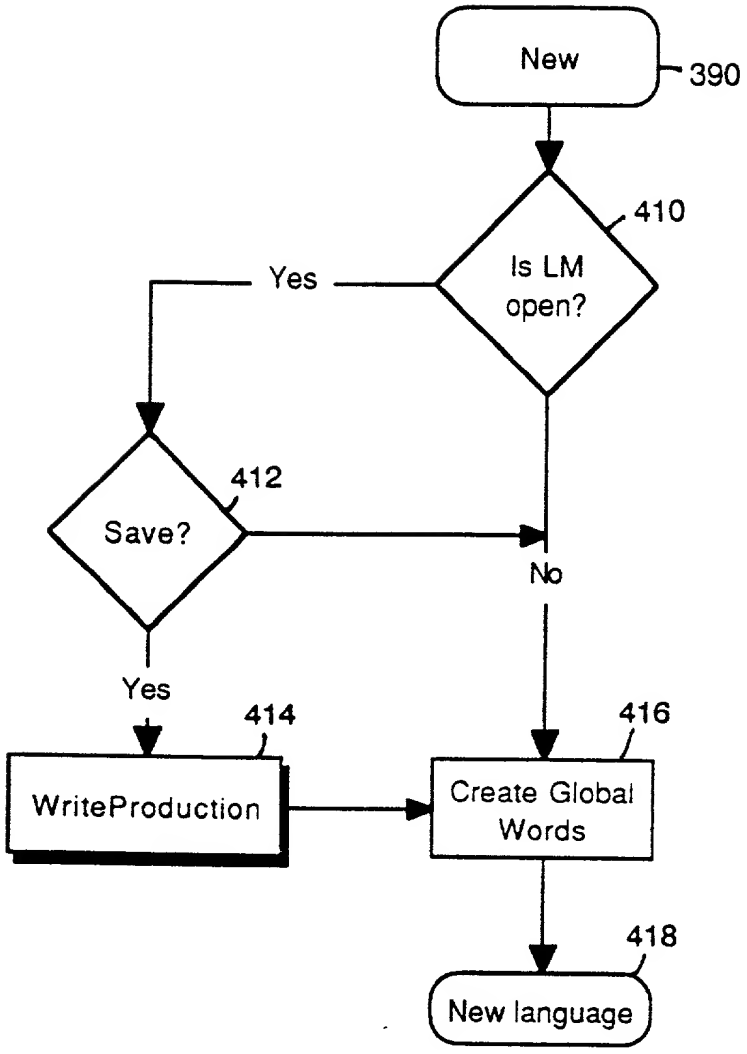

New
390
410
Is LM open?
Yes
412
Save?
No
Yes
414
WriteProduction
416
Create Global Words
418
New language

FIG. 11A

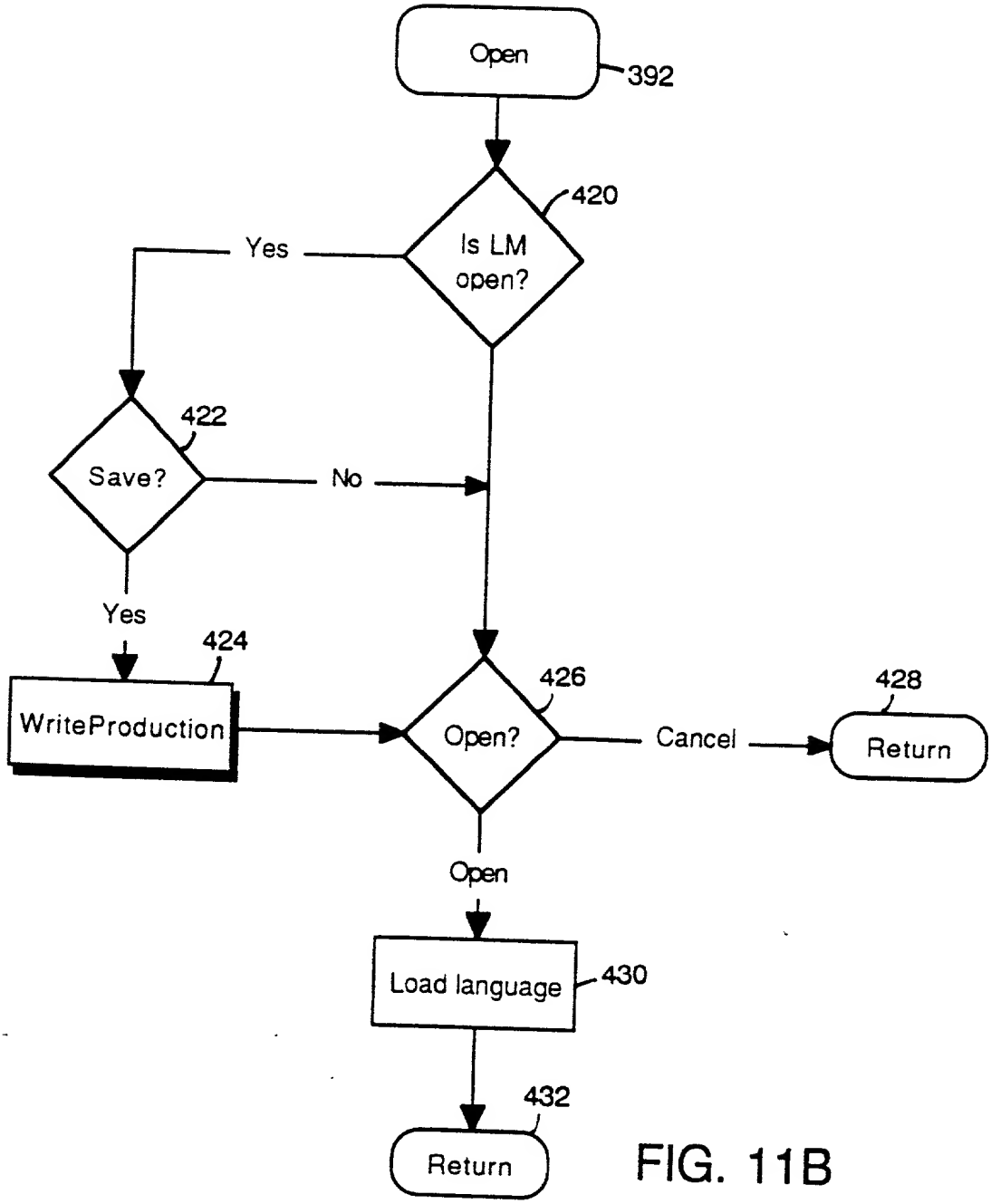

Open
392
Is LM open?
420
Yes
Save?
422
No
Yes
WriteProduction
424
Open?
426
Cancel
Return
428
Open
Load language
430
Return
432

FIG. 11B

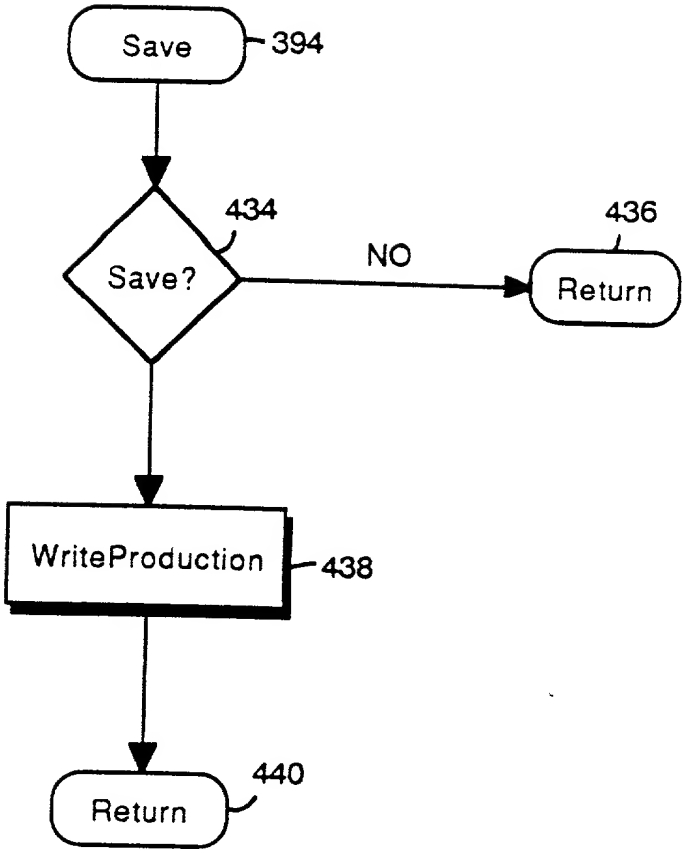

Save
394
Save?
434
NO
436
Return
WriteProduction
438
Return
440

FIG. 11C

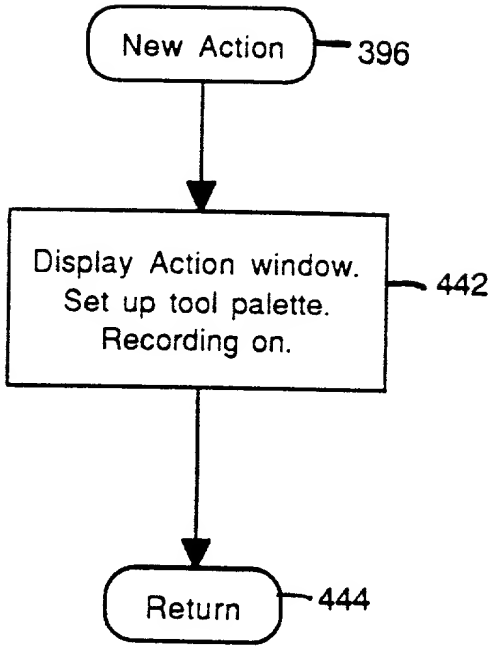

New Action
396
Display Action window.
Set up tool palette.
Recording on.
442
Return
444

FIG. 11D

Petitioner's Exhibit 2023

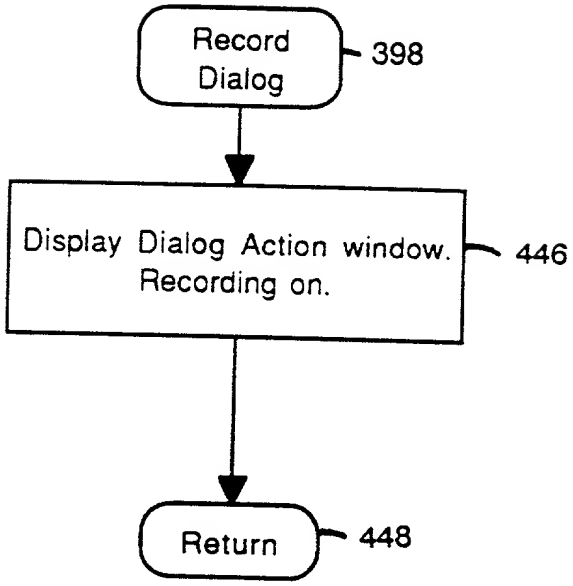


FIG. 11E

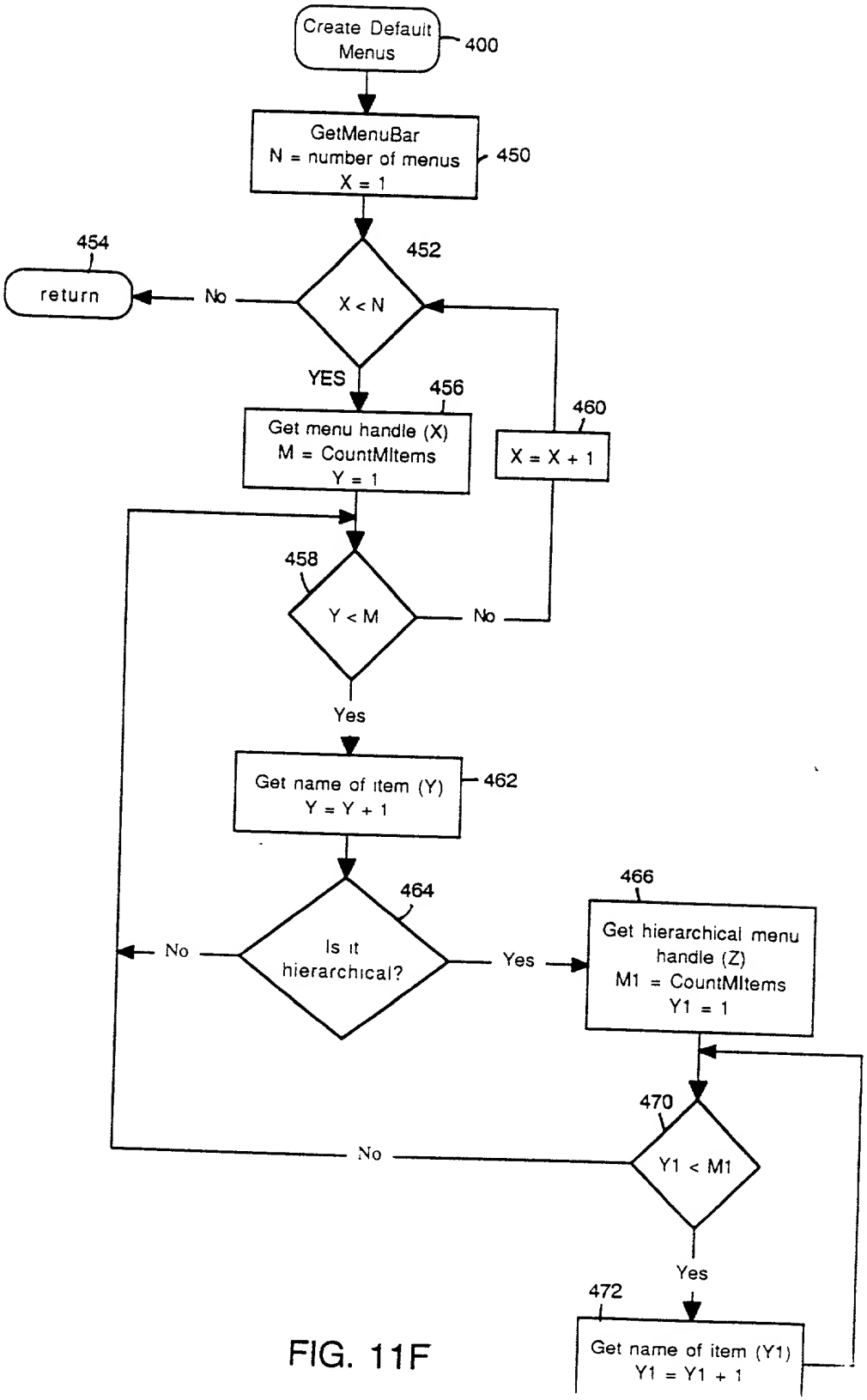

Create Default Menus
400
GetMenuBar
N = number of menus
X = 1
450
452
X < N
454
return
No
YES
456
Get menu handle (X)
M = CountMItems
Y = 1
460
X = X + 1
458
Y < M
No
Yes
Get name of item (Y)
Y = Y + 1
462
464
Is it hierarchical?
No
Yes
466
Get hierarchical menu handle (Z)
M1 = CountMItems
Y1 = 1
470
Y1 < M1
No
Yes
472
Get name of item (Y1)
Y1 = Y1 + 1

FIG. 11F

Path: 20 - 5/2/2 6/4/20

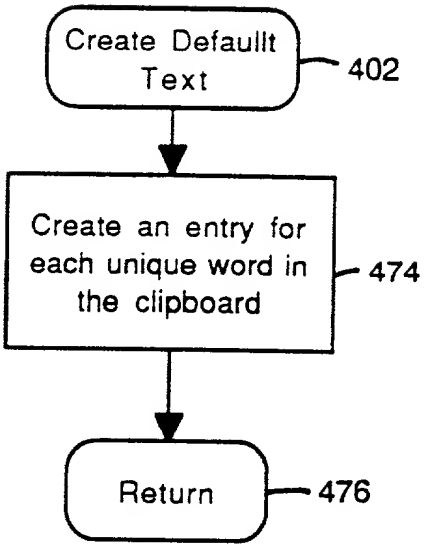


FIG. 11G

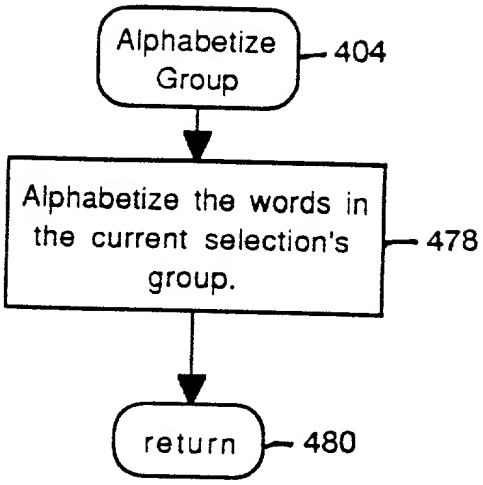

Alphabetize Group
404
Alphabetize the words in the current selection's group.
478
return
480

FIG. 11H

Patented: May 26, 1998

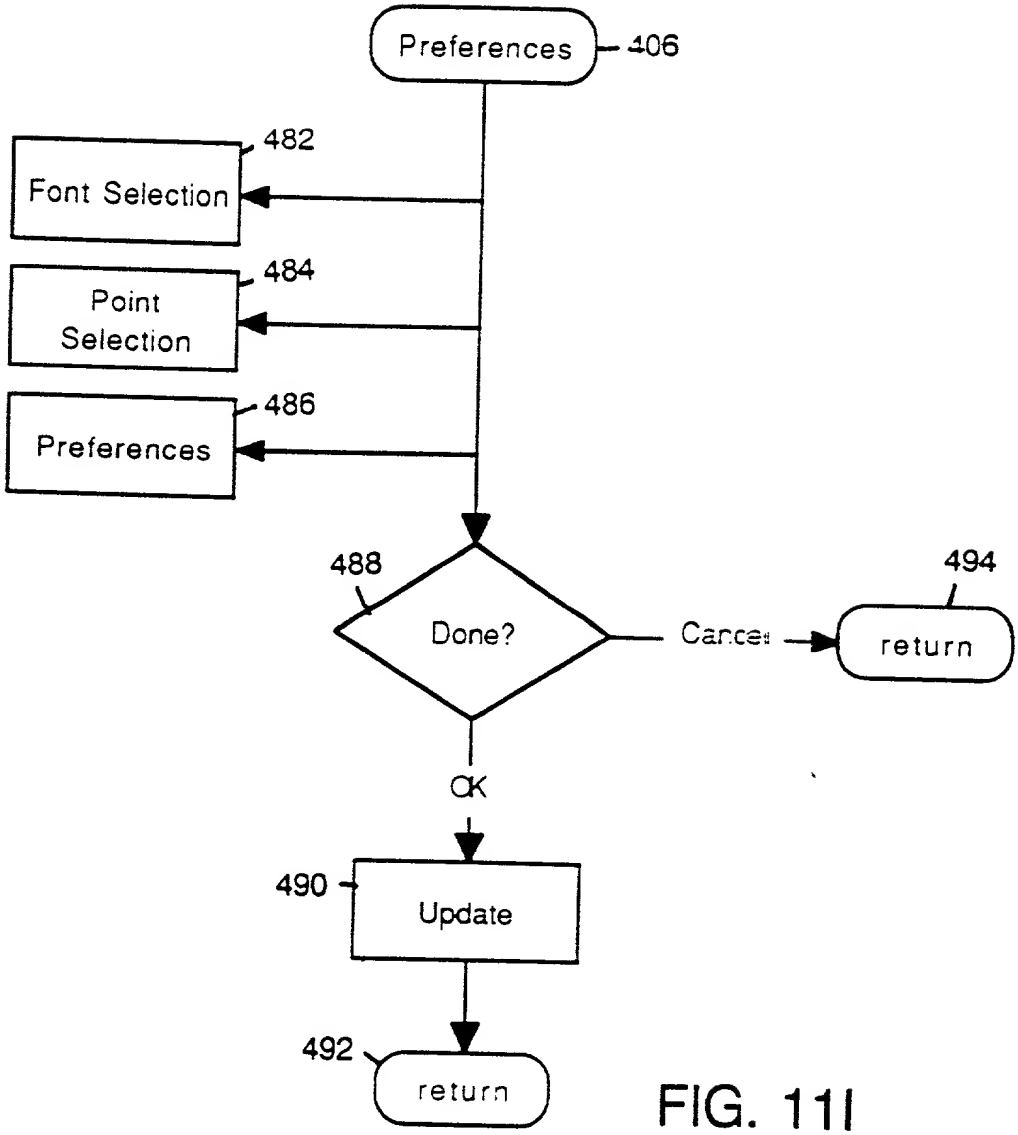


FIG. 11I

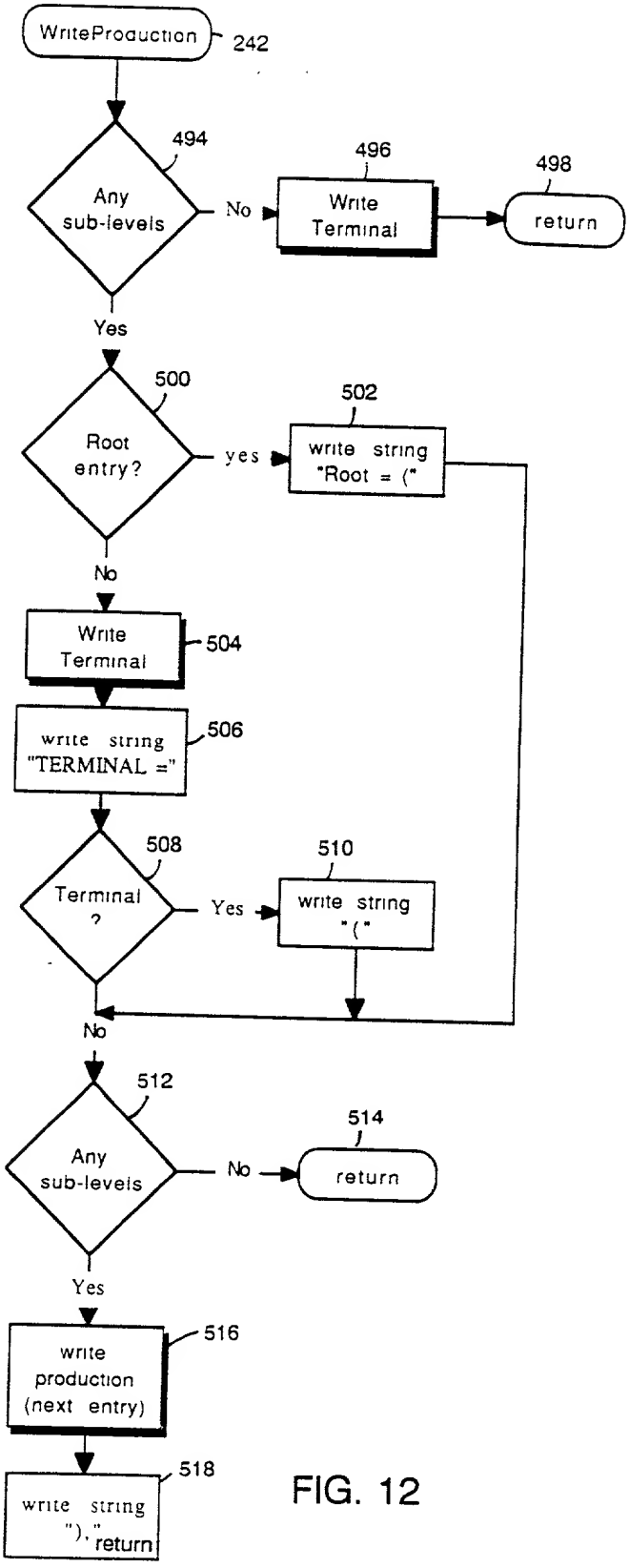

WriteProduction
242
Any sub-levels
494
No
Write Terminal
496
return
498
Yes
Root entry?
500
yes
write string "Root = ("
502
No
Write Terminal
504
write string "TERMINAL ="
506
Terminal ?
508
Yes
write string "("
510
No
Any sub-levels
512
No
return
514
Yes
write production (next entry)
516
write string "),"
return
518

FIG. 12

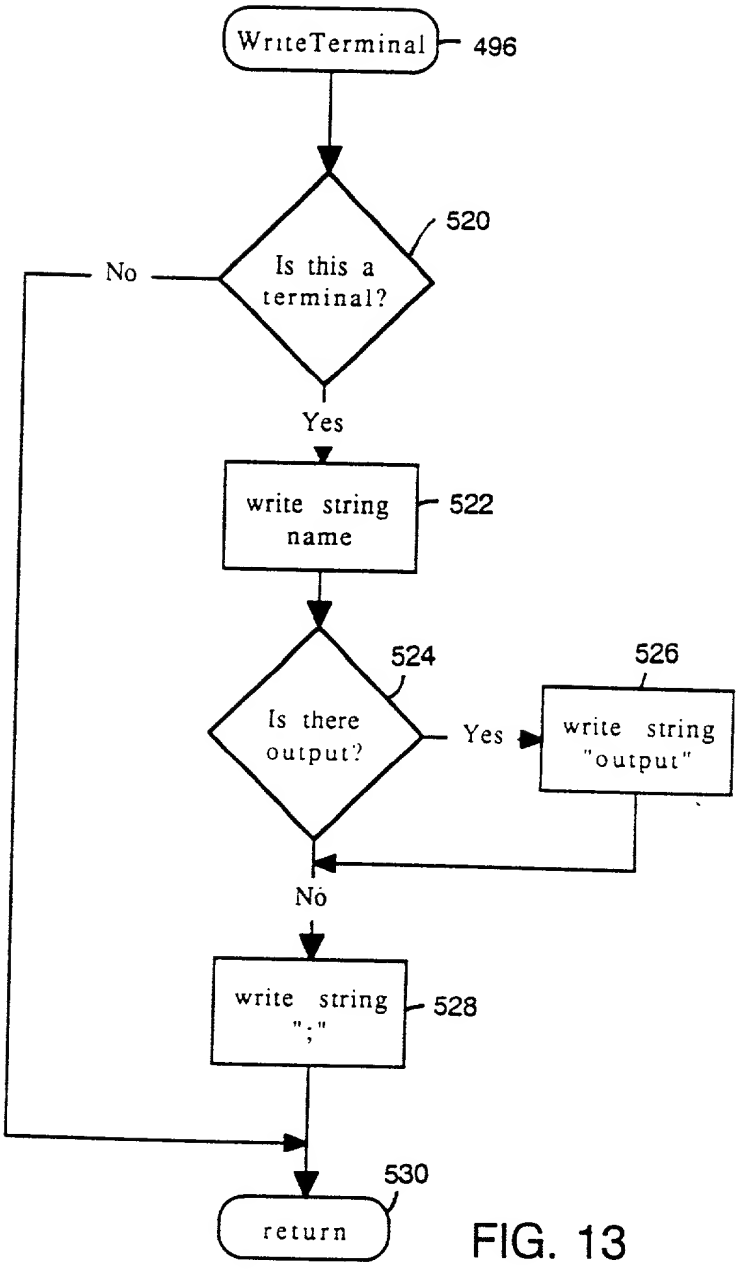

WriteTerminal
496
Is this a terminal?
520
No
Yes
write string name
522
Is there output?
524
Yes
write string "output"
526
No
write string ";"
528
return
530

FIG. 13

Exhibit 2150

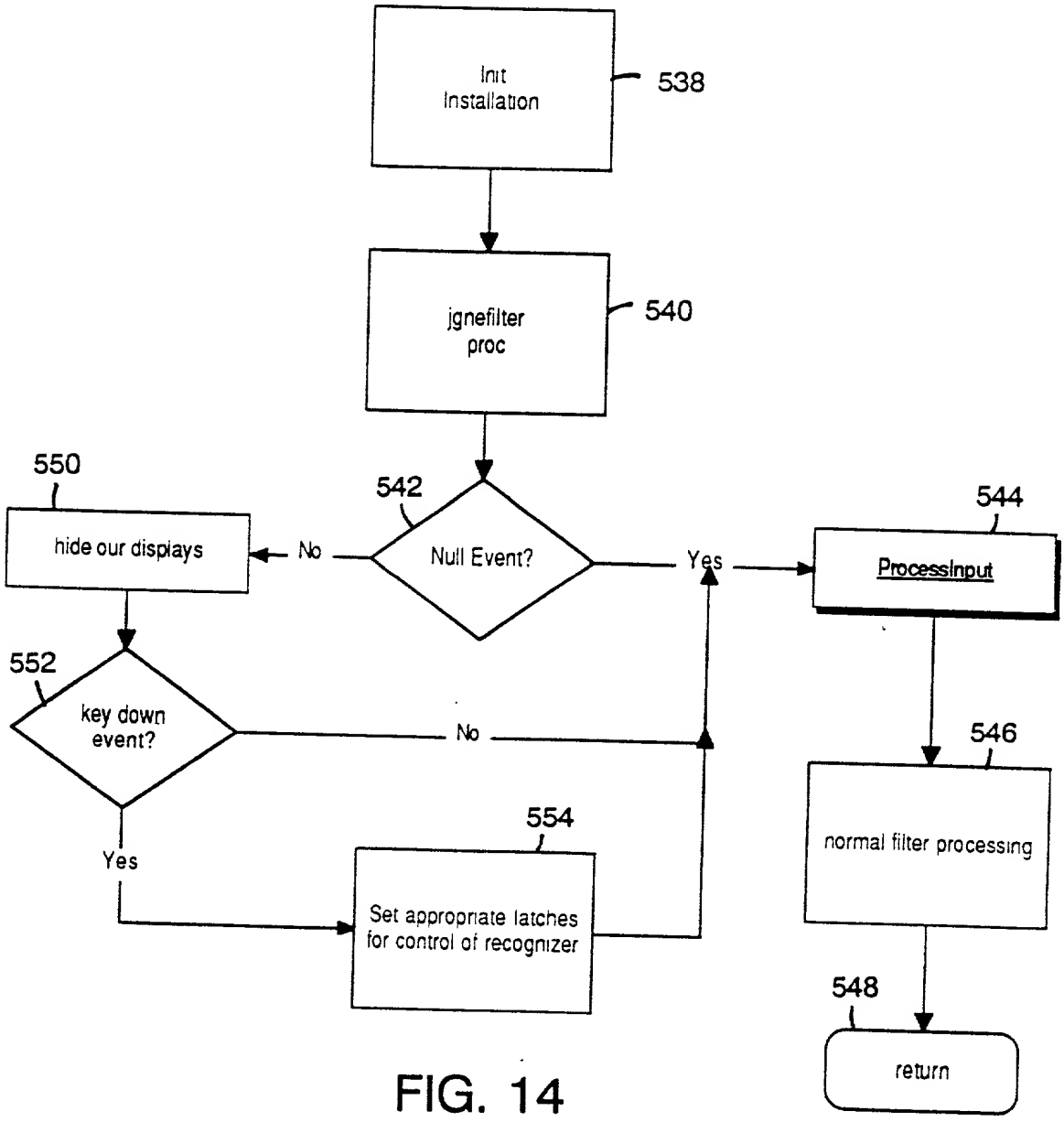


FIG. 14

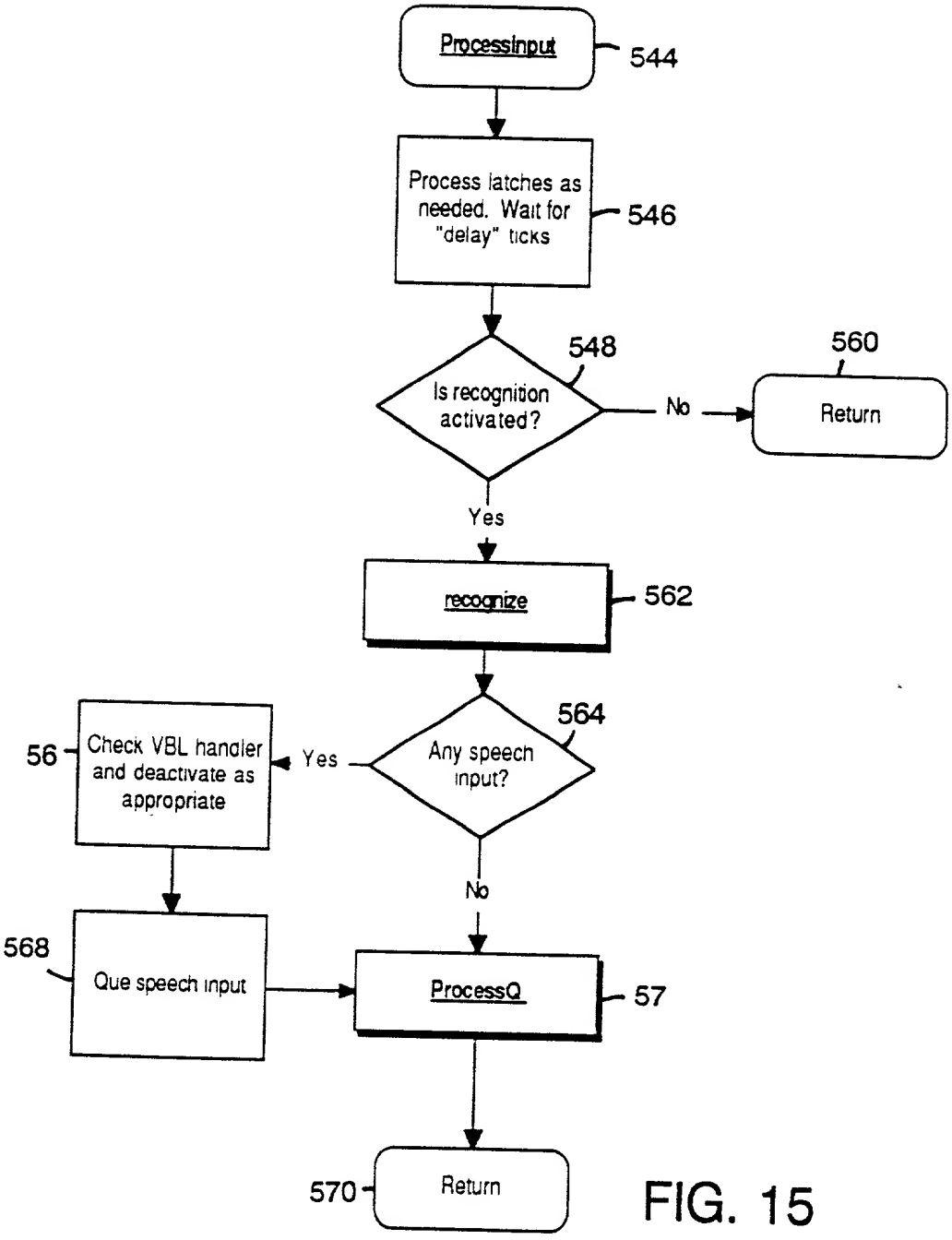

ProcessInput
544
Process latches as needed. Wait for "delay" ticks
546
548
Is recognition activated?
No
560
Return
Yes
recognize
562
564
Any speech input?
Yes
56
Check VBL handler and deactivate as appropriate
No
568
Que speech input
ProcessQ
57
570
Return

FIG. 15

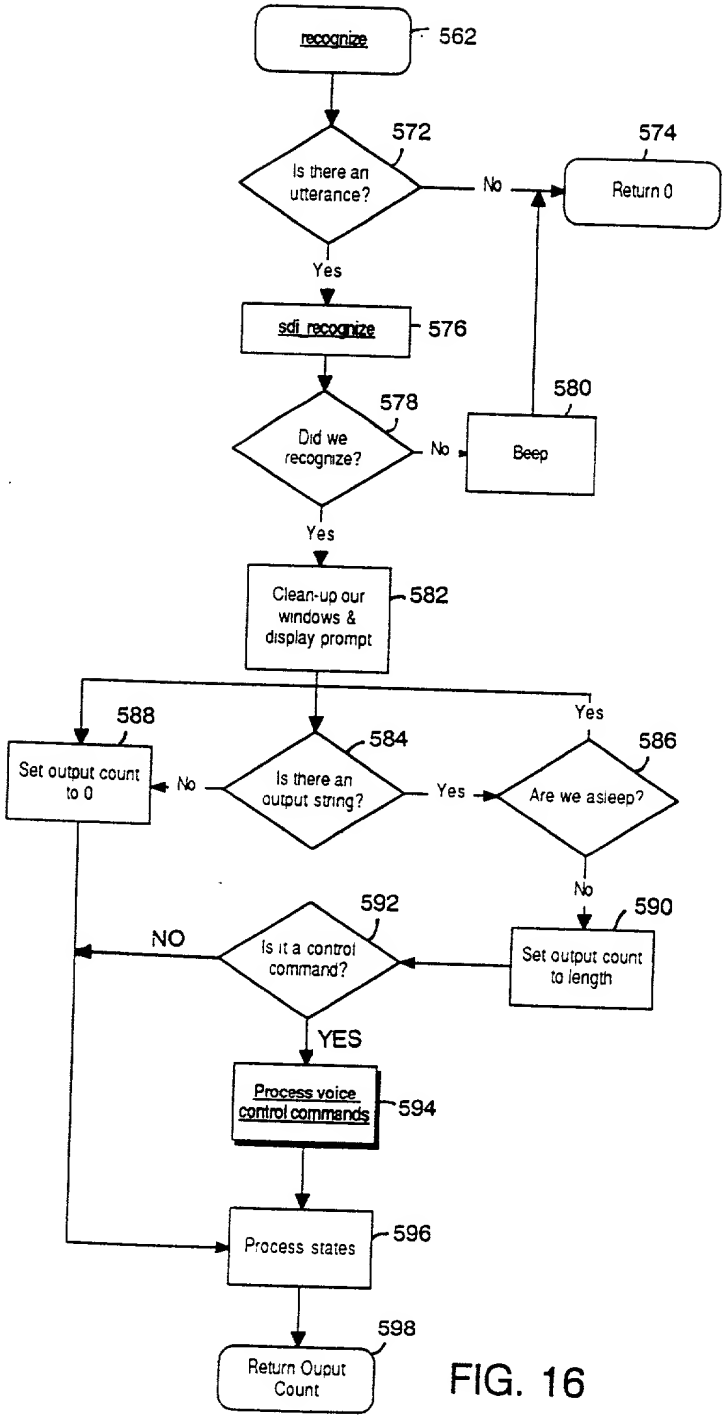

recognize
562
Is there an utterance?
572
No
Return 0
574
Yes
sdi_recognize
576
Did we recognize?
578
No
Beep
580
Yes
Clean-up our windows & display prompt
582
Yes
Set output count to 0
588
No
Is there an output string?
584
Yes
Are we asleep?
586
No
NO
Is it a control command?
592
Set output count to length
590
YES
Process voice control commands
594
Process states
596
Return Ouput Count
598

FIG. 16

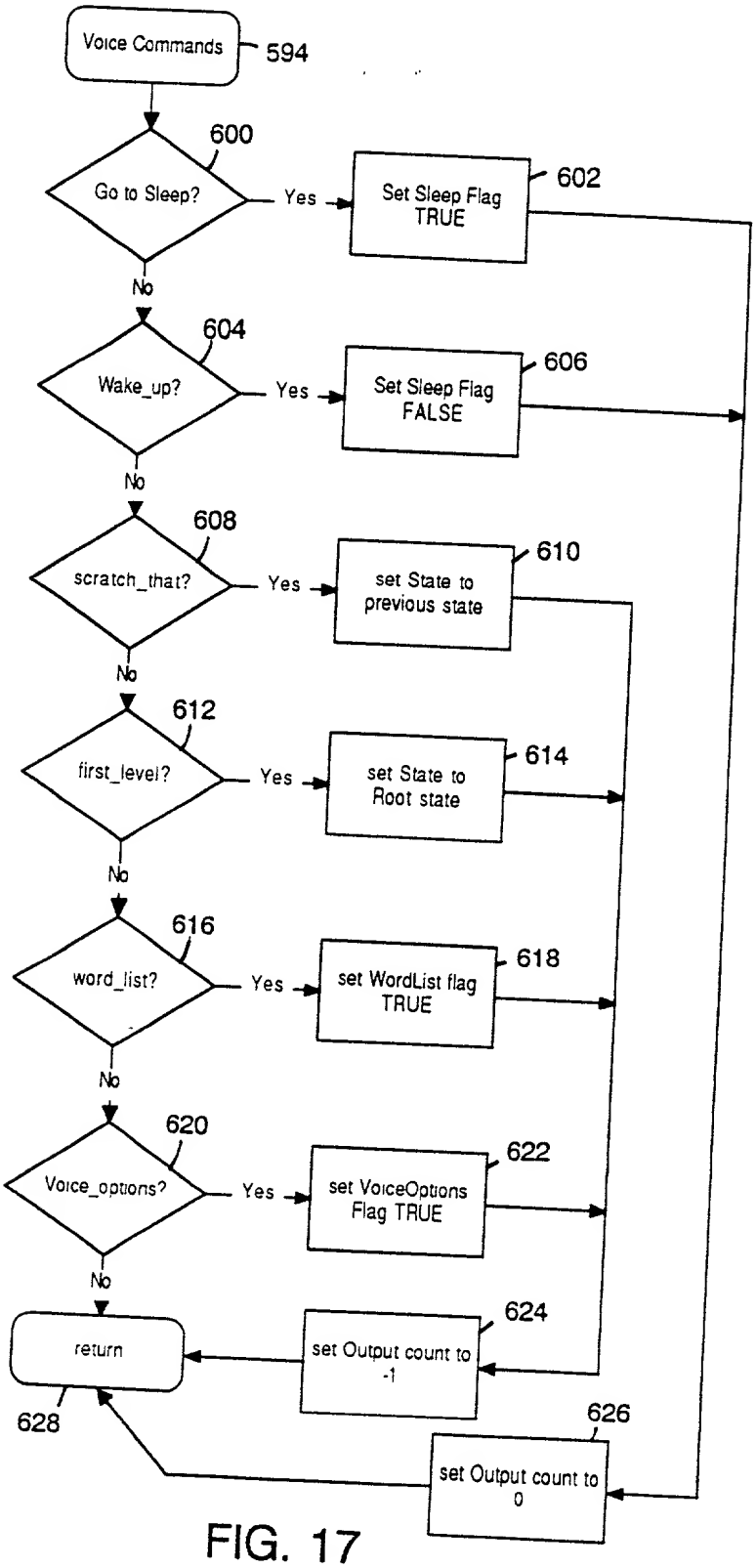

Voice Commands
594
600
Go to Sleep?
Yes
Set Sleep Flag TRUE
602
No
604
Wake_up?
Yes
Set Sleep Flag FALSE
606
No
608
scratch_that?
Yes
set State to previous state
610
No
612
first_level?
Yes
set State to Root state
614
No
616
word_list?
Yes
set WordList flag TRUE
618
No
620
Voice_options?
Yes
set VoiceOptions Flag TRUE
622
No
return
set Output count to -1
624
628
626
set Output count to 0

FIG. 17

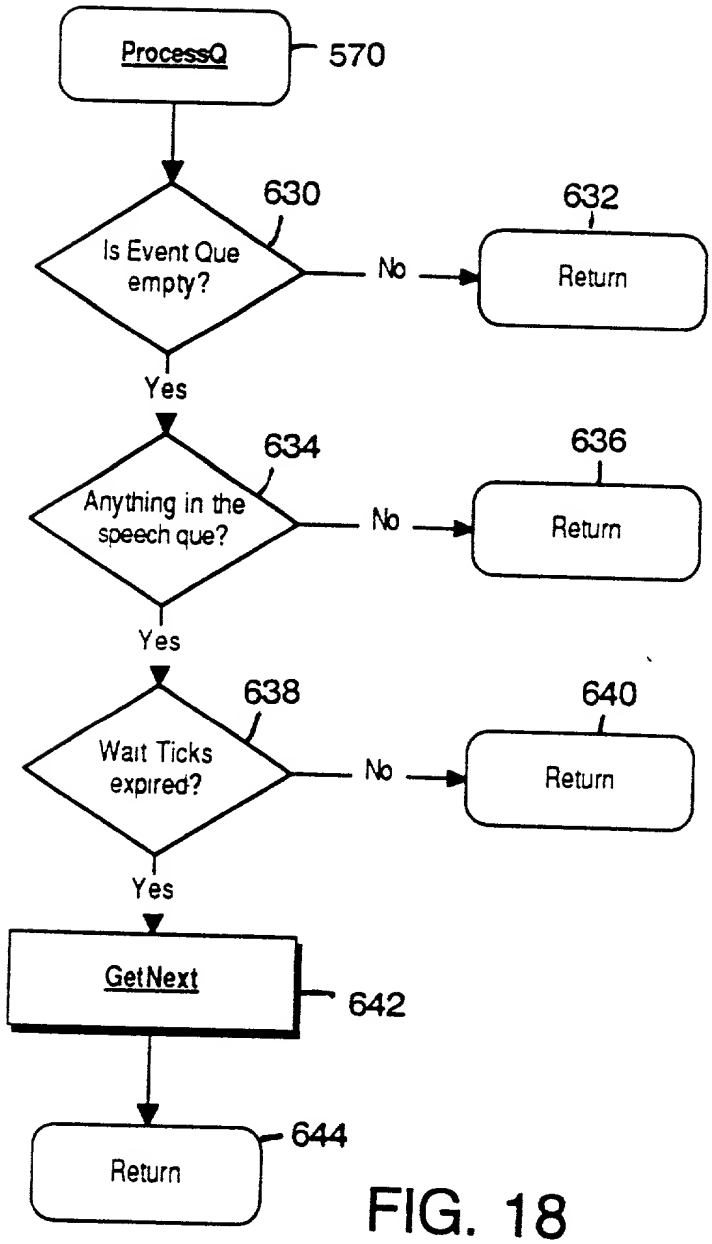

ProcessQ
570
630
Is Event Que empty?
No
632
Return
Yes
634
Anything in the speech que?
No
636
Return
Yes
638
Wait Ticks expired?
No
640
Return
Yes
GetNext
642
Return
644

FIG. 18

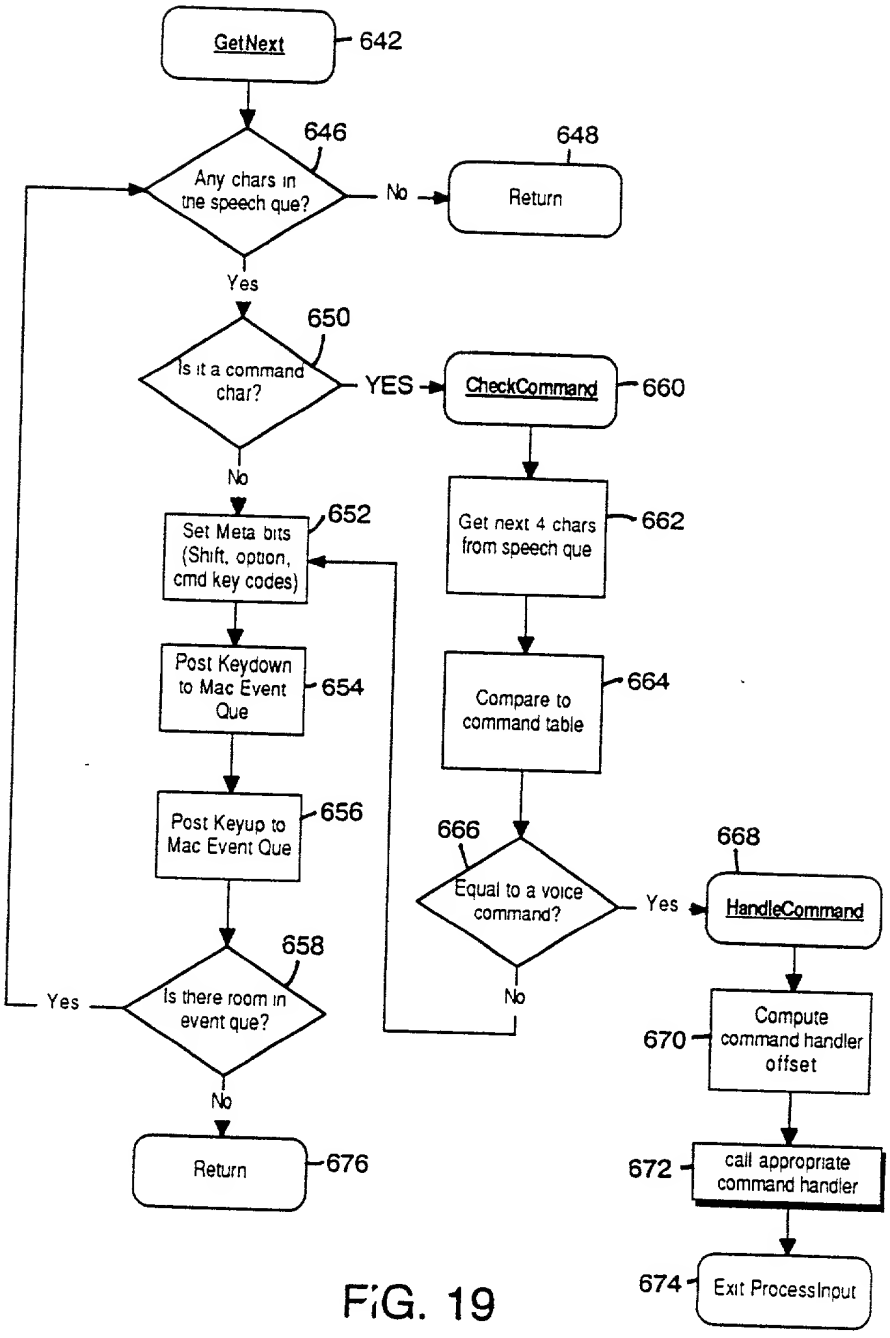

GetNext
642
646
Any chars in the speech que?
No
648
Return
Yes
650
Is it a command char?
YES
CheckCommand
660
No
652
Set Meta bits (Shift, option, cmd key codes)
Post Keydown to Mac Event Que
654
Post Keyup to Mac Event Que
656
658
Is there room in event que?
Yes
No
Return
676
Get next 4 chars from speech que
662
Compare to command table
664
666
Equal to a voice command?
Yes
No
668
HandleCommand
Compute command handler offset
670
call appropriate command handler
672
Exit ProcessInput
674

FIG. 19

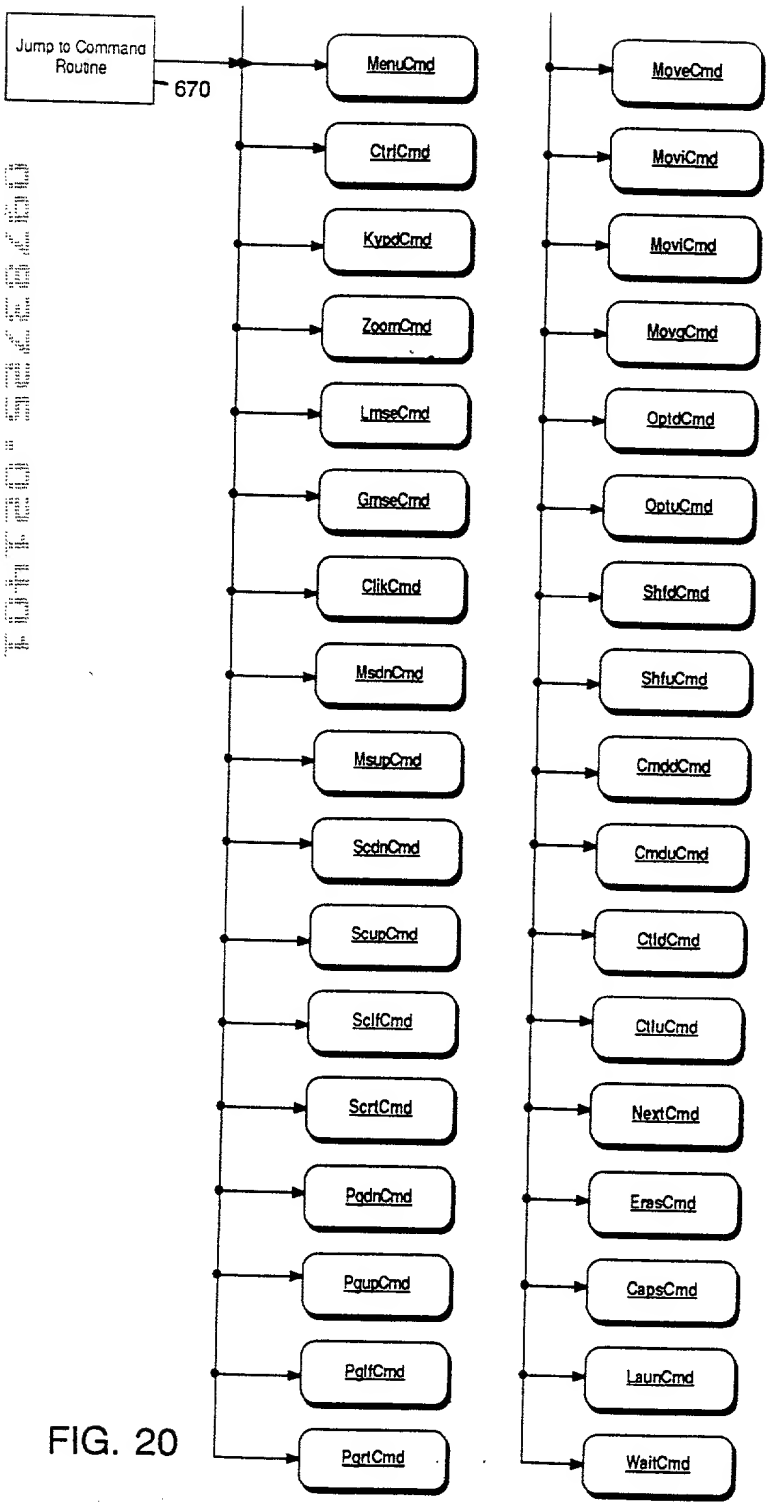

Jump to Command Routine
670
MenuCmd
CtrlCmd
KypdCmd
ZoomCmd
LmseCmd
GmseCmd
ClikCmd
MsdnCmd
MsupCmd
ScdnCmd
ScupCmd
SclfCmd
ScrtCmd
PgdnCmd
PgupCmd
PglfCmd
PgrtCmd
MoveCmd
MoviCmd
MoviCmd
MovgCmd
OptdCmd
OptuCmd
ShfdCmd
ShfuCmd
CmddCmd
CmduCmd
CtldCmd
CtluCmd
NextCmd
ErasCmd
CapsCmd
LaunCmd
WaitCmd

FIG. 20

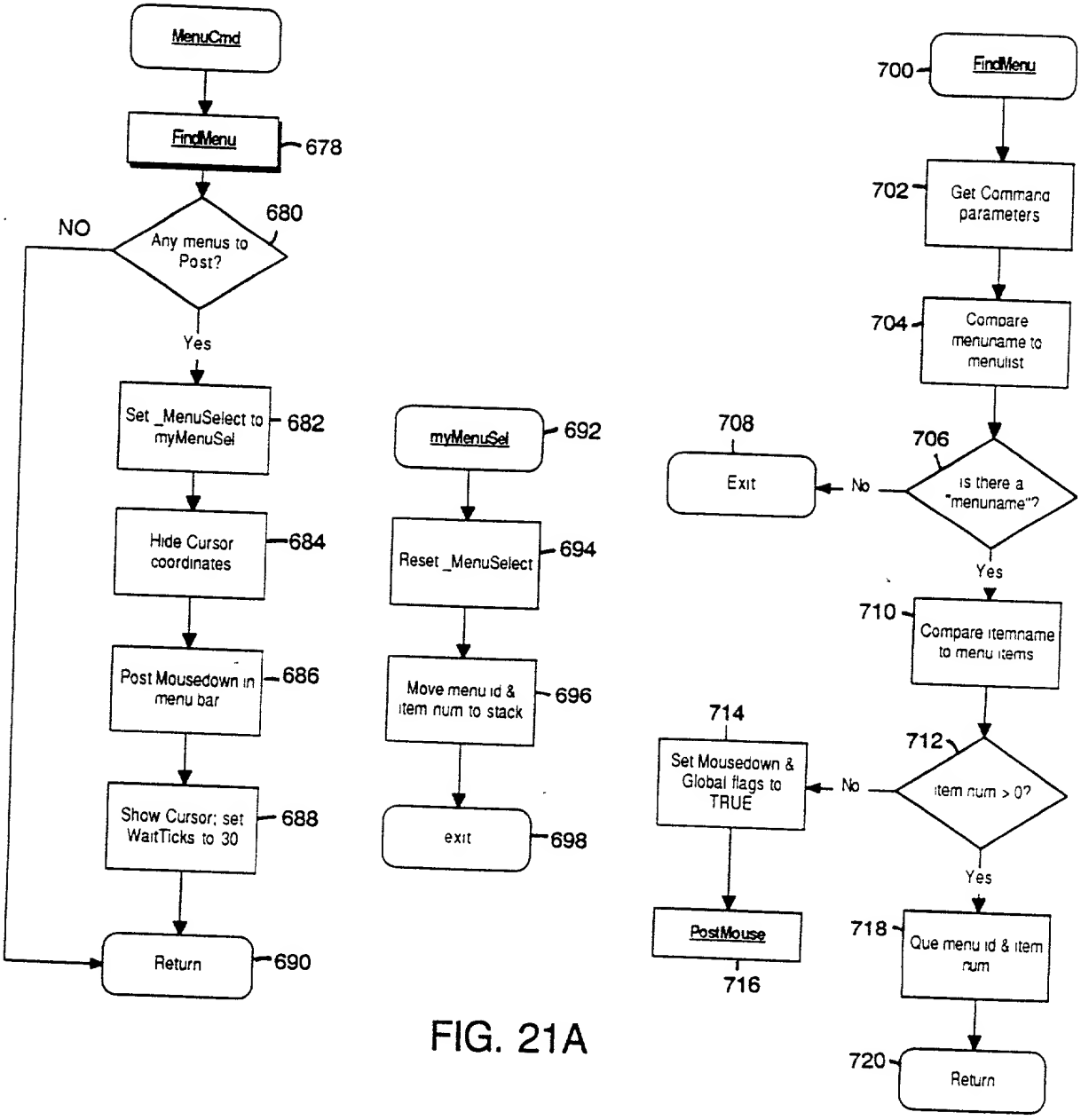
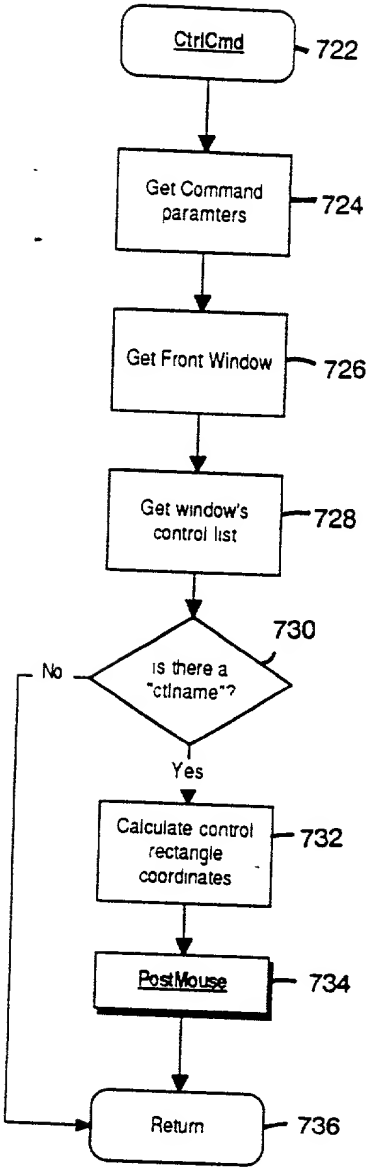
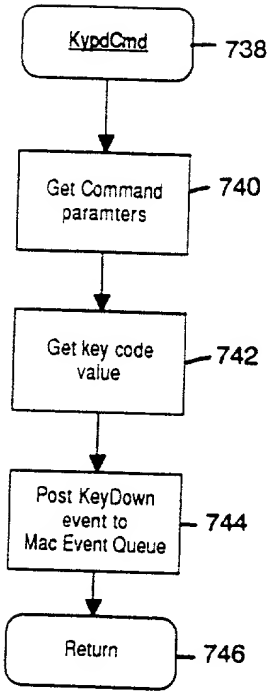

MenuCmd
FindMenu
678
NO
Any menus to Post?
680
Yes
Set _MenuSelect to myMenuSel
682
Hide Cursor coordinates
684
Post Mousedown in menu bar
686
Show Cursor; set WaitTicks to 30
688
Return
690
myMenuSel
692
Reset _MenuSelect
694
Move menu id & item num to stack
696
exit
698
700
FindMenu
702
Get Command parameters
704
Compare menuname to menulist
706
Is there a "menuname"?
No
708
Exit
Yes
710
Compare itemname to menu items
712
item num > 0?
No
714
Set Mousedown & Global flags to TRUE
PostMouse
716
Yes
718
Que menu id & item num
720
Return

FIG. 21A


CtrlCmd
722
Get Command paramters
724
Get Front Window
726
Get window's control list
728
730
Is there a "ctlname"?
No
Yes
Calculate control rectangle coordinates
732
PostMouse
734
Return
736


KypdCmd
738
Get Command paramters
740
Get key code value
742
Post KeyDown event to Mac Event Queue
744
Return
746

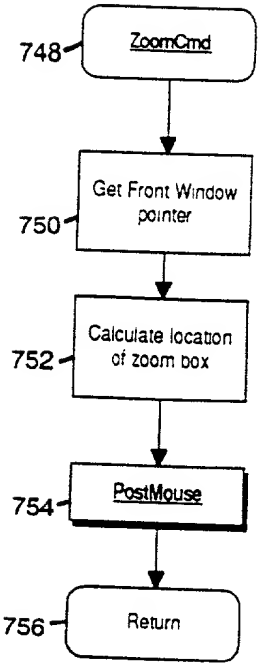

748
ZoomCmd
Get Front Window pointer
750
Calculate location of zoom box
752
PostMouse
754
Return
756

FIG. 21B

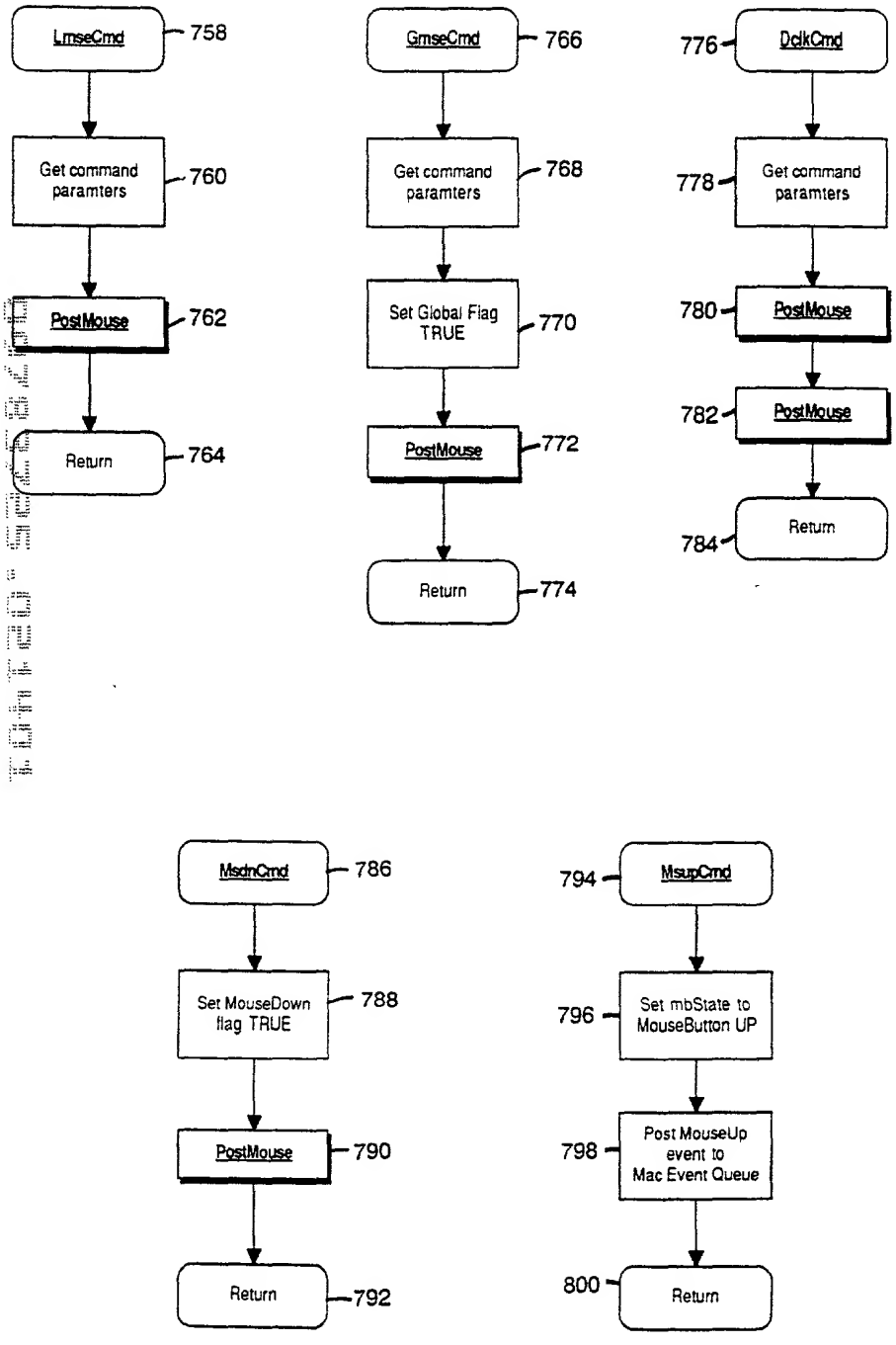

LmseCmd
758
Get command paramters
760
PostMouse
762
Return
764
GmseCmd
766
Get command paramters
768
Set Global Flag TRUE
770
PostMouse
772
Return
774
776
DclkCmd
Get command paramters
778
PostMouse
780
PostMouse
782
Return
784
MsdnCmd
786
Set MouseDown flag TRUE
788
PostMouse
790
Return
792
794
MsupCmd
Set mbState to MouseButton UP
796
Post MouseUp event to Mac Event Queue
798
Return
800

FIG. 21C

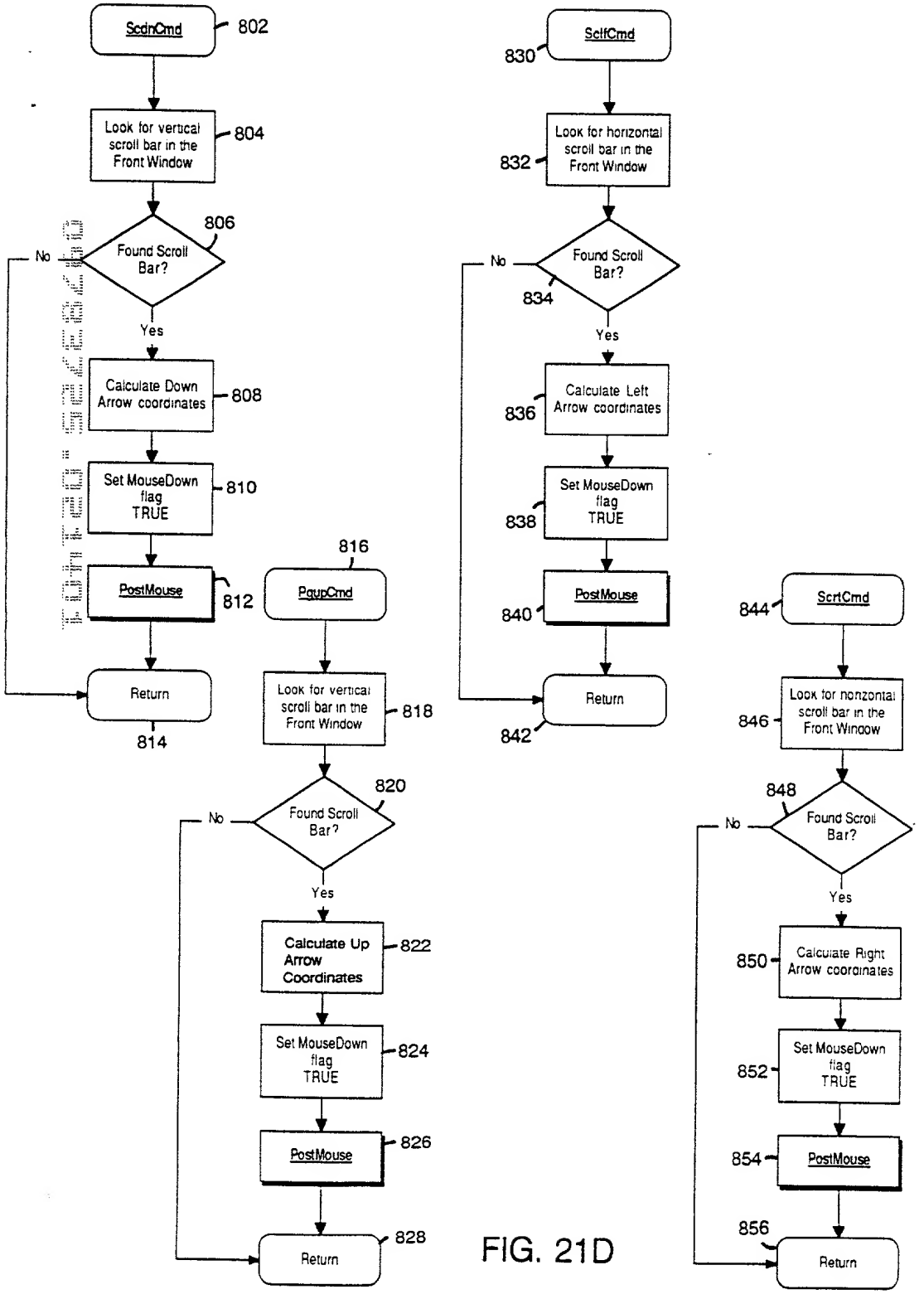

ScdnCmd
802
Look for vertical scroll bar in the Front Window
804
Found Scroll Bar?
806
No
Yes
Calculate Down Arrow coordinates
808
Set MouseDown flag TRUE
810
PostMouse
812
Return
814
PgupCmd
816
Look for vertical scroll bar in the Front Window
818
Found Scroll Bar?
820
No
Yes
Calculate Up Arrow Coordinates
822
Set MouseDown flag TRUE
824
PostMouse
826
Return
828
SctfCmd
830
Look for horizontal scroll bar in the Front Window
832
Found Scroll Bar?
834
No
Yes
Calculate Left Arrow coordinates
836
Set MouseDown flag TRUE
838
PostMouse
840
Return
842
ScrtCmd
844
Look for horizontal scroll bar in the Front Window
846
Found Scroll Bar?
848
No
Yes
Calculate Right Arrow coordinates
850
Set MouseDown flag TRUE
852
PostMouse
854
Return
856

FIG. 21D

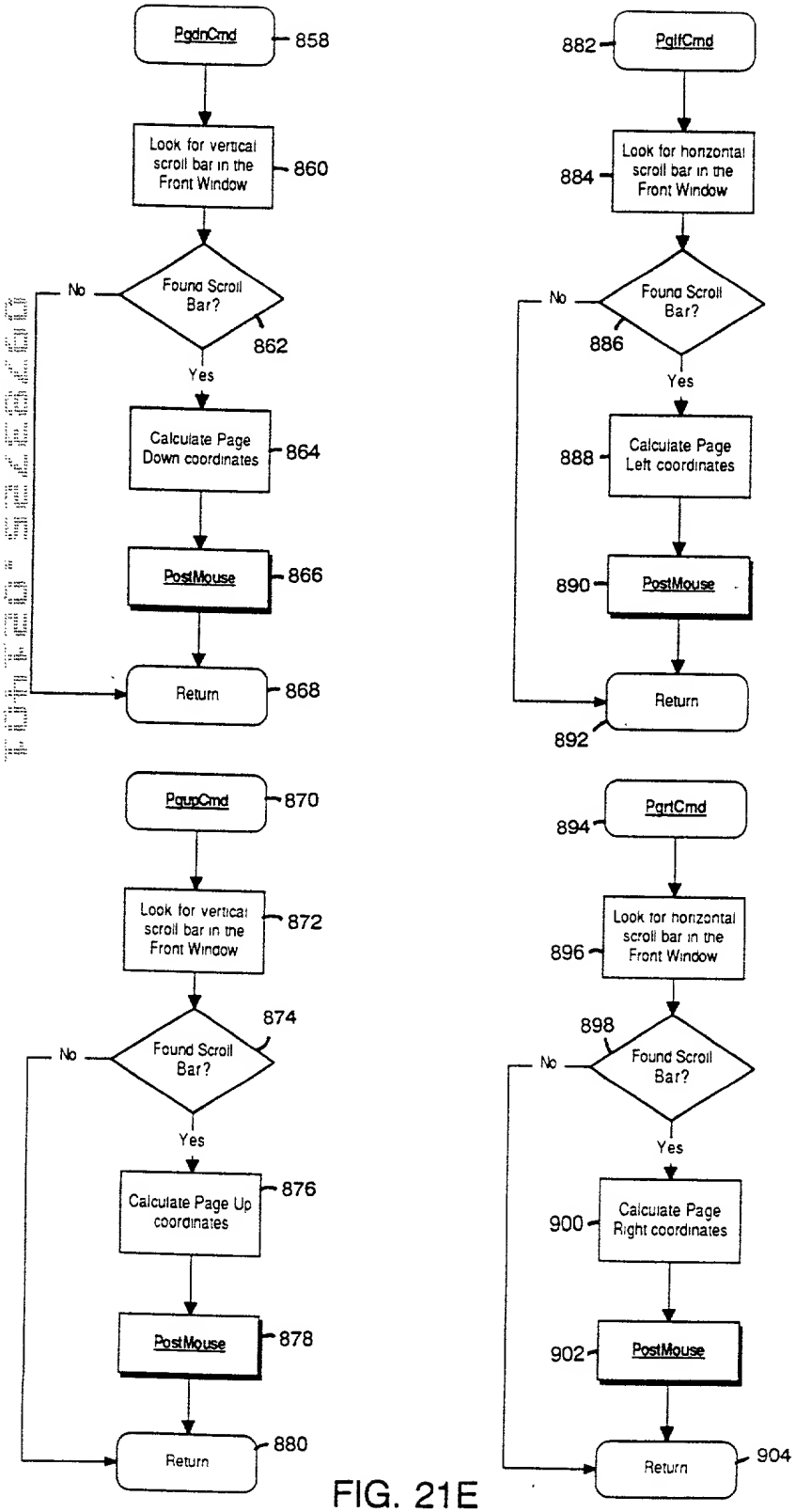

PgdnCmd
858
Look for vertical scroll bar in the Front Window
860
Found Scroll Bar?
862
No
Yes
Calculate Page Down coordinates
864
PostMouse
866
Return
868
PgupCmd
870
Look for vertical scroll bar in the Front Window
872
Found Scroll Bar?
874
No
Yes
Calculate Page Up coordinates
876
PostMouse
878
Return
880
PglfCmd
882
Look for horizontal scroll bar in the Front Window
884
Found Scroll Bar?
886
No
Yes
Calculate Page Left coordinates
888
PostMouse
890
Return
892
PgrtCmd
894
Look for horizontal scroll bar in the Front Window
896
Found Scroll Bar?
898
No
Yes
Calculate Page Right coordinates
900
PostMouse
902
Return
904

FIG. 21E

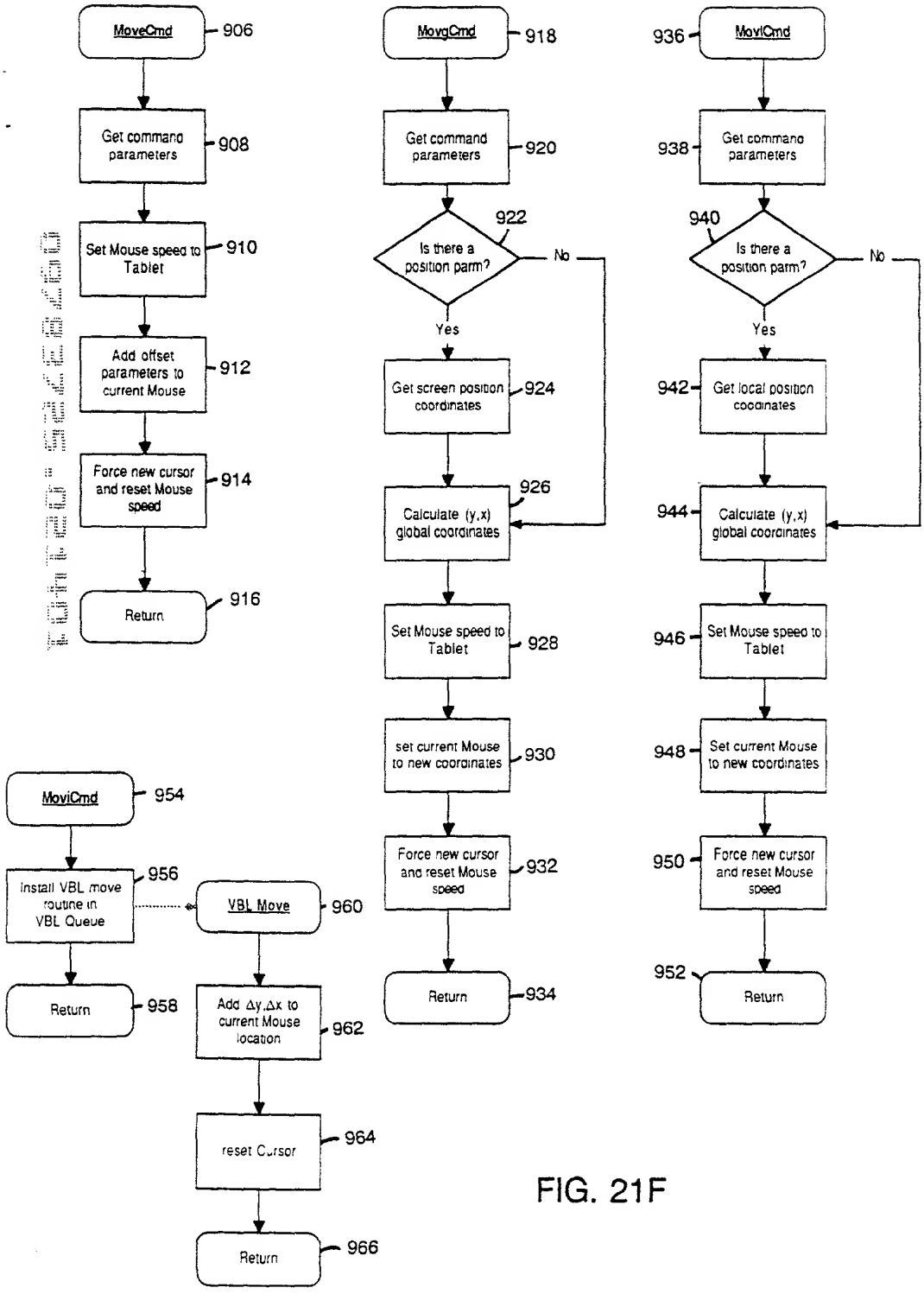

MoveCmd
906
Get command parameters
908
Set Mouse speed to Tablet
910
Add offset parameters to current Mouse
912
Force new cursor and reset Mouse speed
914
Return
916
MovgCmd
918
Get command parameters
920
Is there a position parm?
922
No
Yes
Get screen position coordinates
924
Calculate (y,x) global coordinates
926
Set Mouse speed to Tablet
928
set current Mouse to new coordinates
930
Force new cursor and reset Mouse speed
932
Return
934
936
MovlCmd
Get command parameters
938
Is there a position parm?
940
No
Yes
Get local position coordinates
942
Calculate (y,x) global coordinates
944
Set Mouse speed to Tablet
946
Set current Mouse to new coordinates
948
Force new cursor and reset Mouse speed
950
Return
952
MoviCmd
954
Install VBL move routine in VBL Queue
956
Return
958
VBL Move
960
Add Δy,Δx to current Mouse location
962
reset Cursor
964
Return
966

FIG. 21F

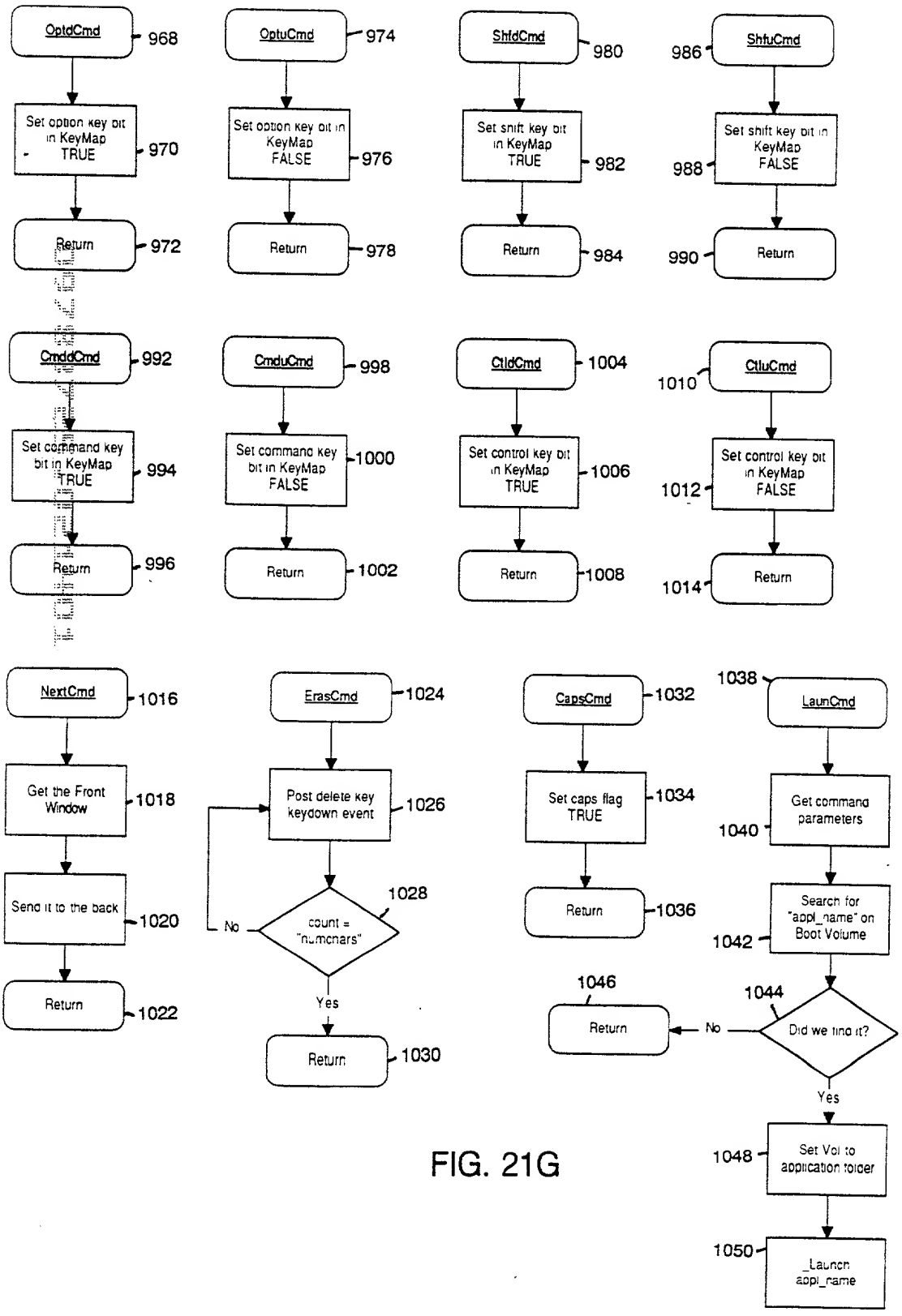

OptdCmd
968
Set option key bit in KeyMap TRUE
970
Return
972
OptuCmd
974
Set option key bit in KeyMap FALSE
976
Return
978
ShfdCmd
980
Set shift key bit in KeyMap TRUE
982
Return
984
986
ShfuCmd
Set shift key bit in KeyMap FALSE
988
Return
990
CmddCmd
992
Set command key bit in KeyMap TRUE
994
Return
996
CmduCmd
998
Set command key bit in KeyMap FALSE
1000
Return
1002
CtldCmd
1004
Set control key bit in KeyMap TRUE
1006
Return
1008
1010
CtluCmd
Set control key bit in KeyMap FALSE
1012
Return
1014
NextCmd
1016
Get the Front Window
1018
Send it to the back
1020
Return
1022
ErasCmd
1024
Post delete key keydown event
1026
count = "numchars"
1028
No
Yes
Return
1030
CapsCmd
1032
Set caps flag TRUE
1034
Return
1036
1038
LaunCmd
Get command parameters
1040
Search for "appl_name" on Boot Volume
1042
Did we find it?
1044
No
Return
1046
Yes
Set Vol to application folder
1048
_Launch appl_name
1050

FIG. 21G

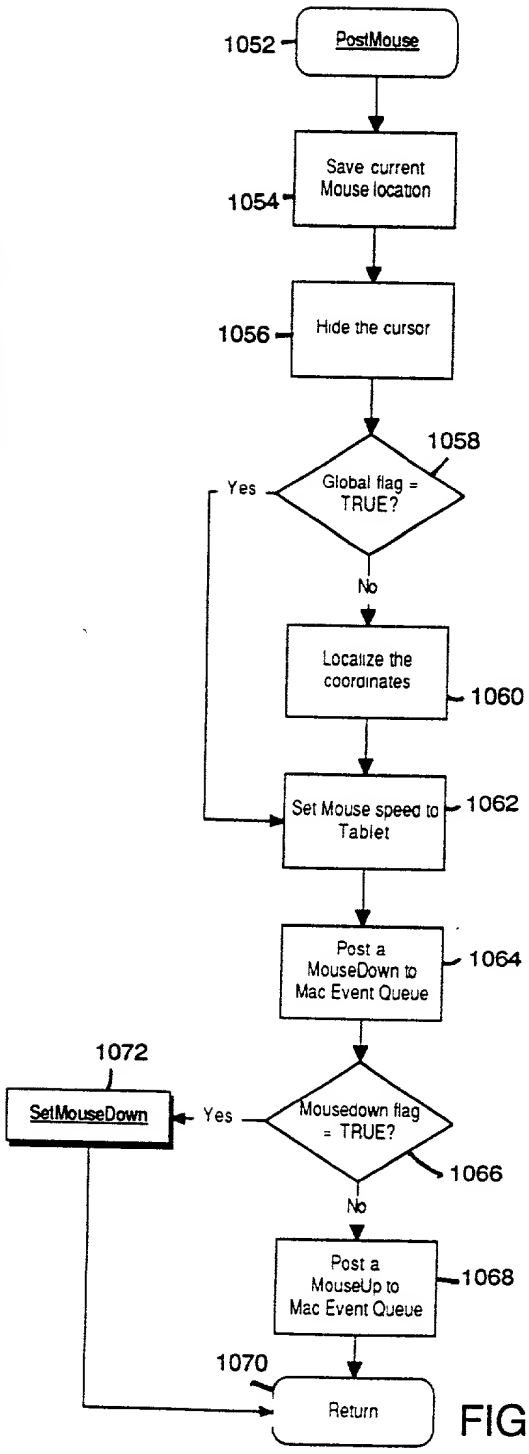

1052
PostMouse
Save current Mouse location
1054
Hide the cursor
1056
1058
Global flag = TRUE?
Yes
No
Localize the coordinates
1060
Set Mouse speed to Tablet
1062
Post a MouseDown to Mac Event Queue
1064
1072
SetMouseDown
Yes
Mousedown flag = TRUE?
1066
No
Post a MouseUp to Mac Event Queue
1068
1070
Return

FIG. 22

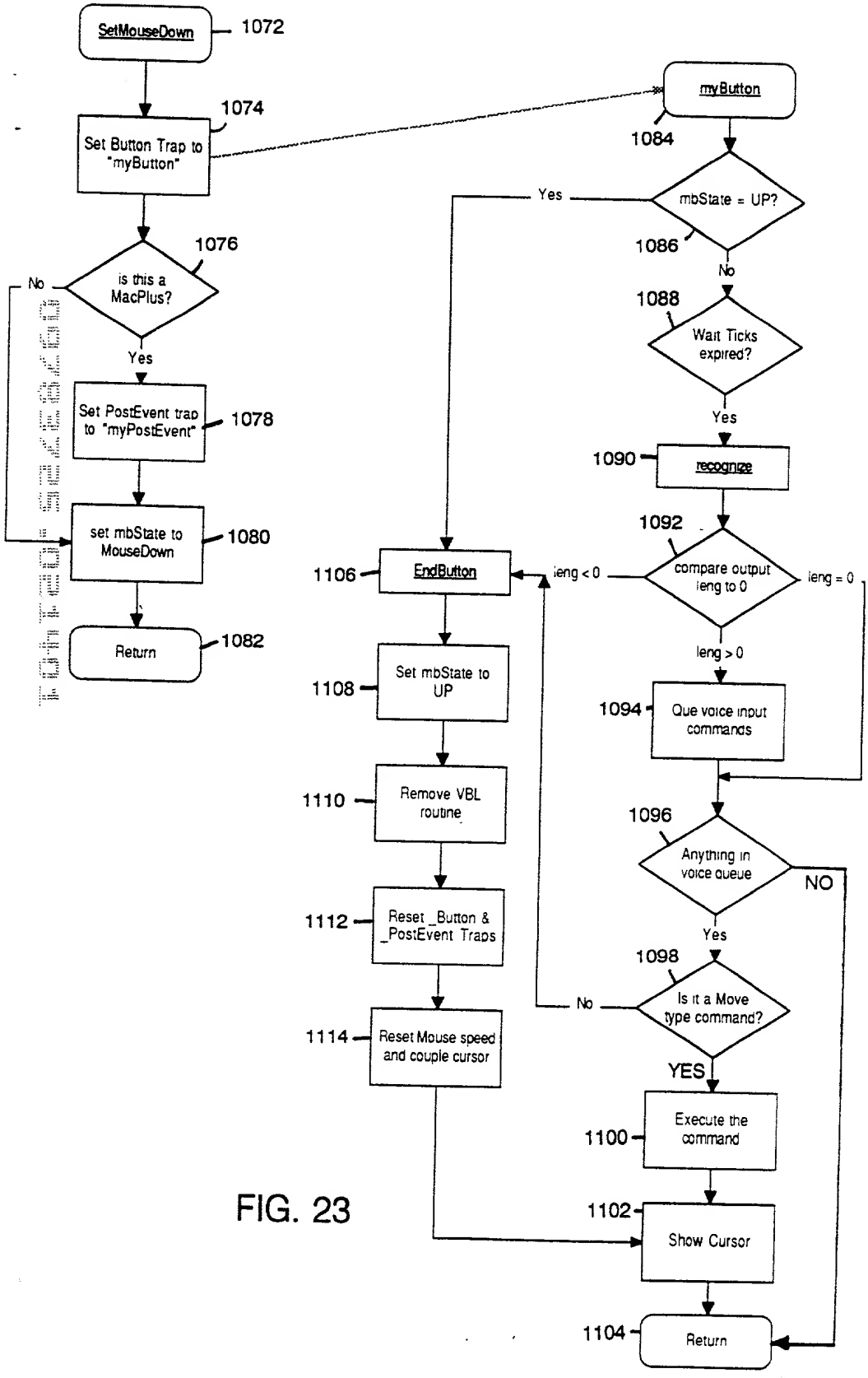

SetMouseDown
1072
Set Button Trap to "myButton"
1074
is this a MacPlus?
1076
No
Yes
Set PostEvent trap to "myPostEvent"
1078
set mbState to MouseDown
1080
Return
1082
myButton
1084
mbState = UP?
1086
Yes
No
Wait Ticks expired?
1088
Yes
recognize
1090
compare output leng to 0
1092
leng < 0
leng = 0
leng > 0
Que voice input commands
1094
Anything in voice queue
1096
NO
Yes
Is it a Move type command?
1098
No
YES
Execute the command
1100
Show Cursor
1102
Return
1104
EndButton
1106
Set mbState to UP
1108
Remove VBL routine
1110
Reset _Button & _PostEvent Traps
1112
Reset Mouse speed and couple cursor
1114

FIG. 23

TOHT20" 92268260

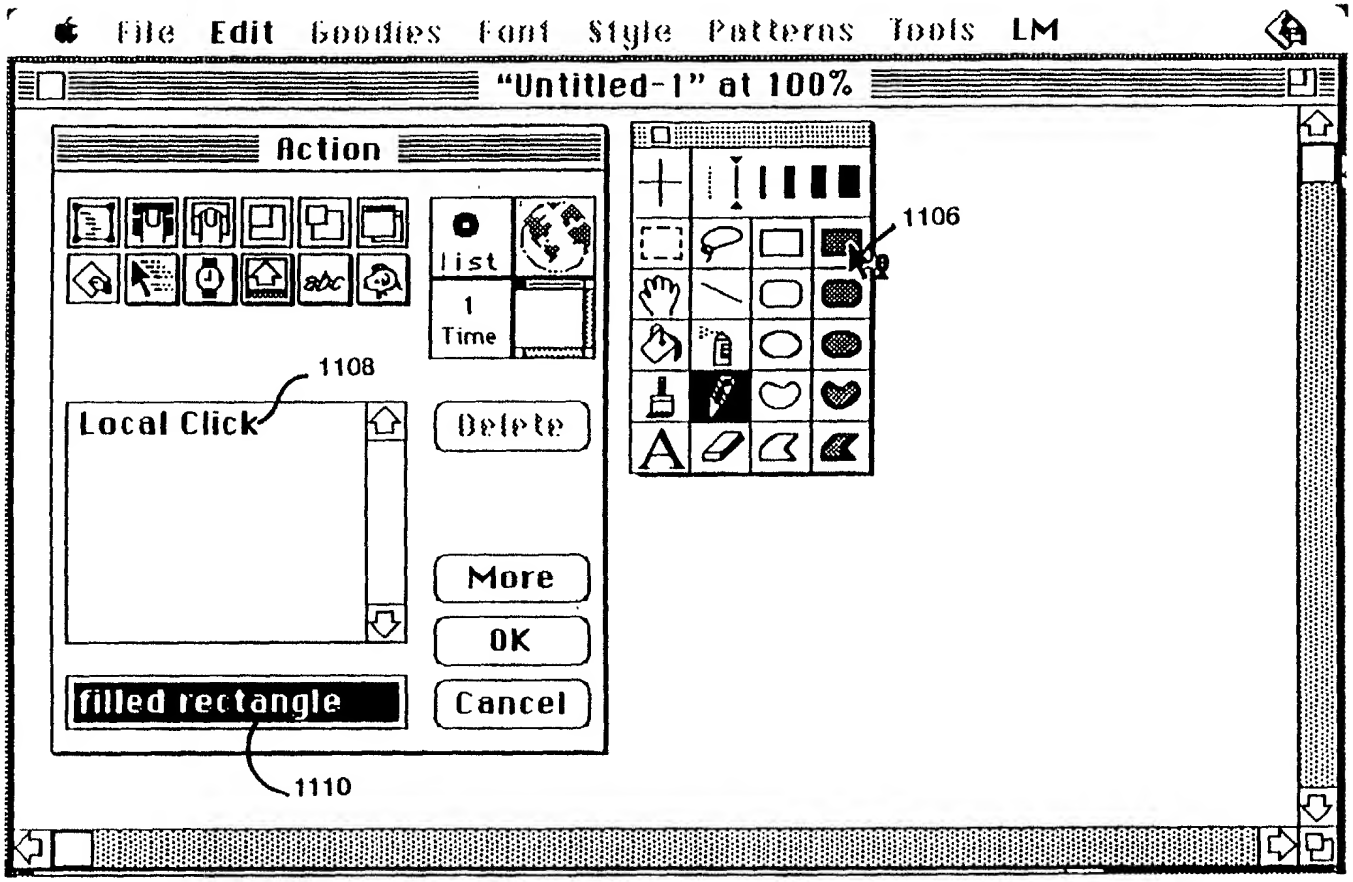


FIG. 24

Tonted Sezesz60

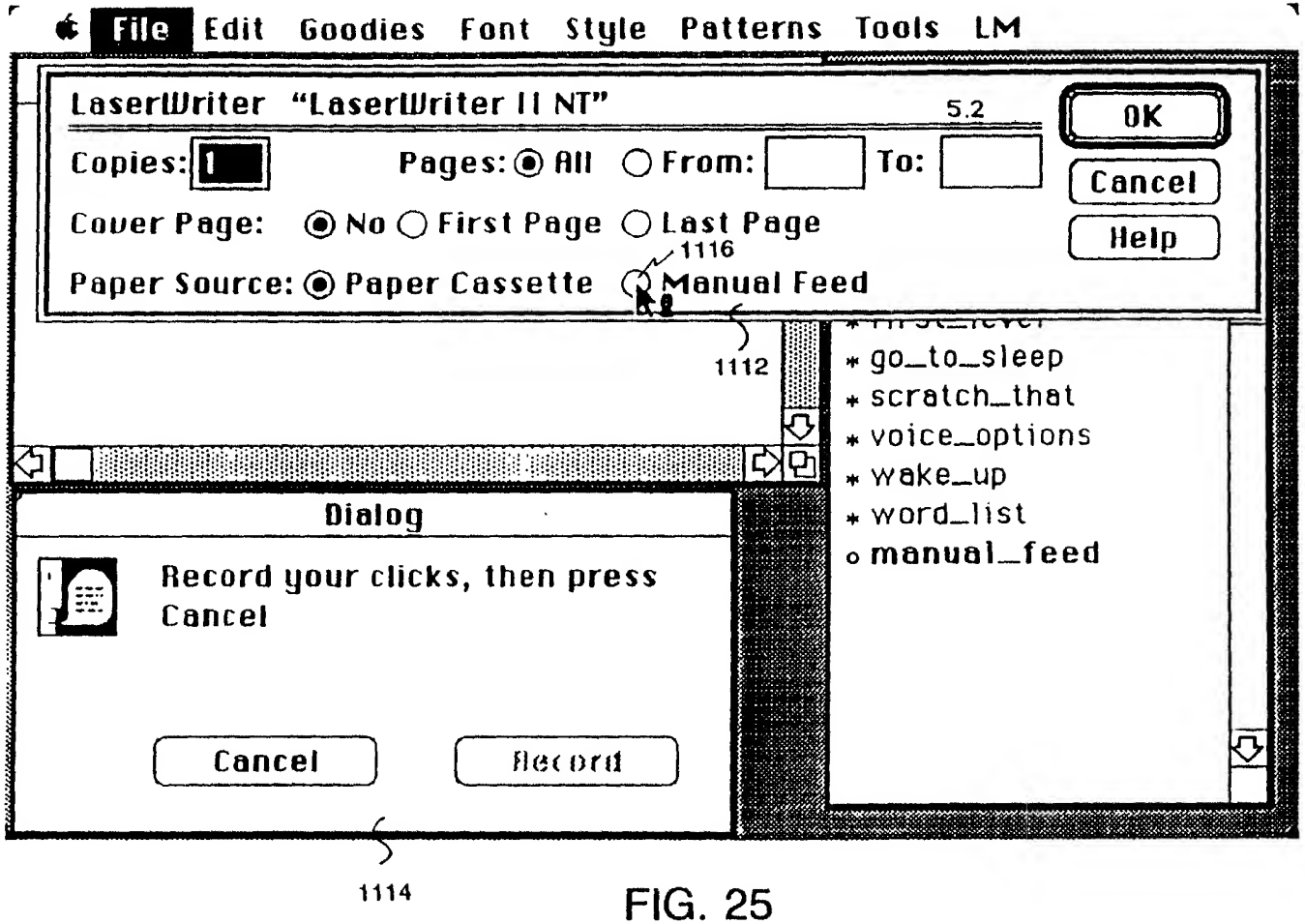


FIG. 25

Tonteo 5226260

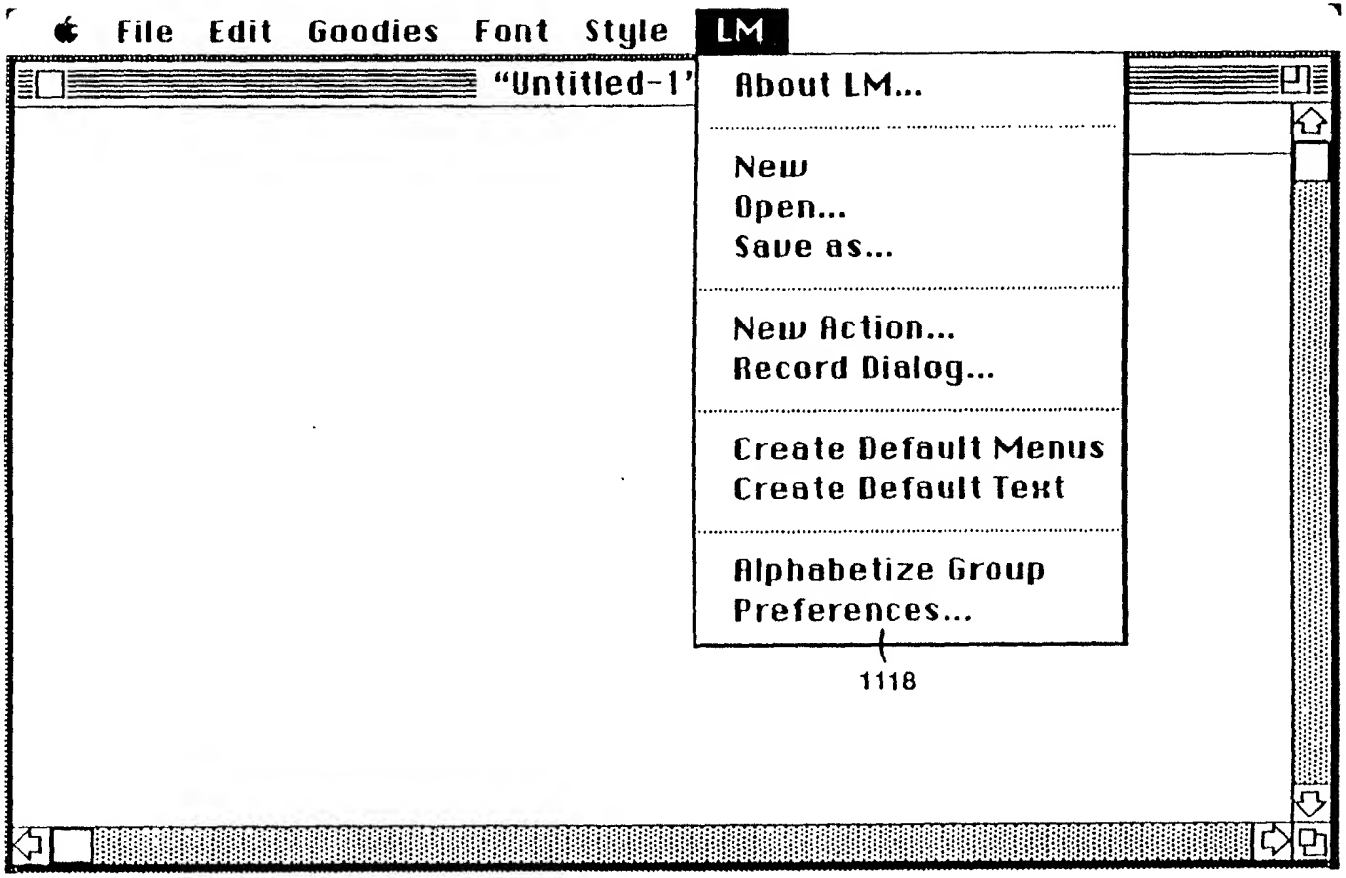


FIG. 26

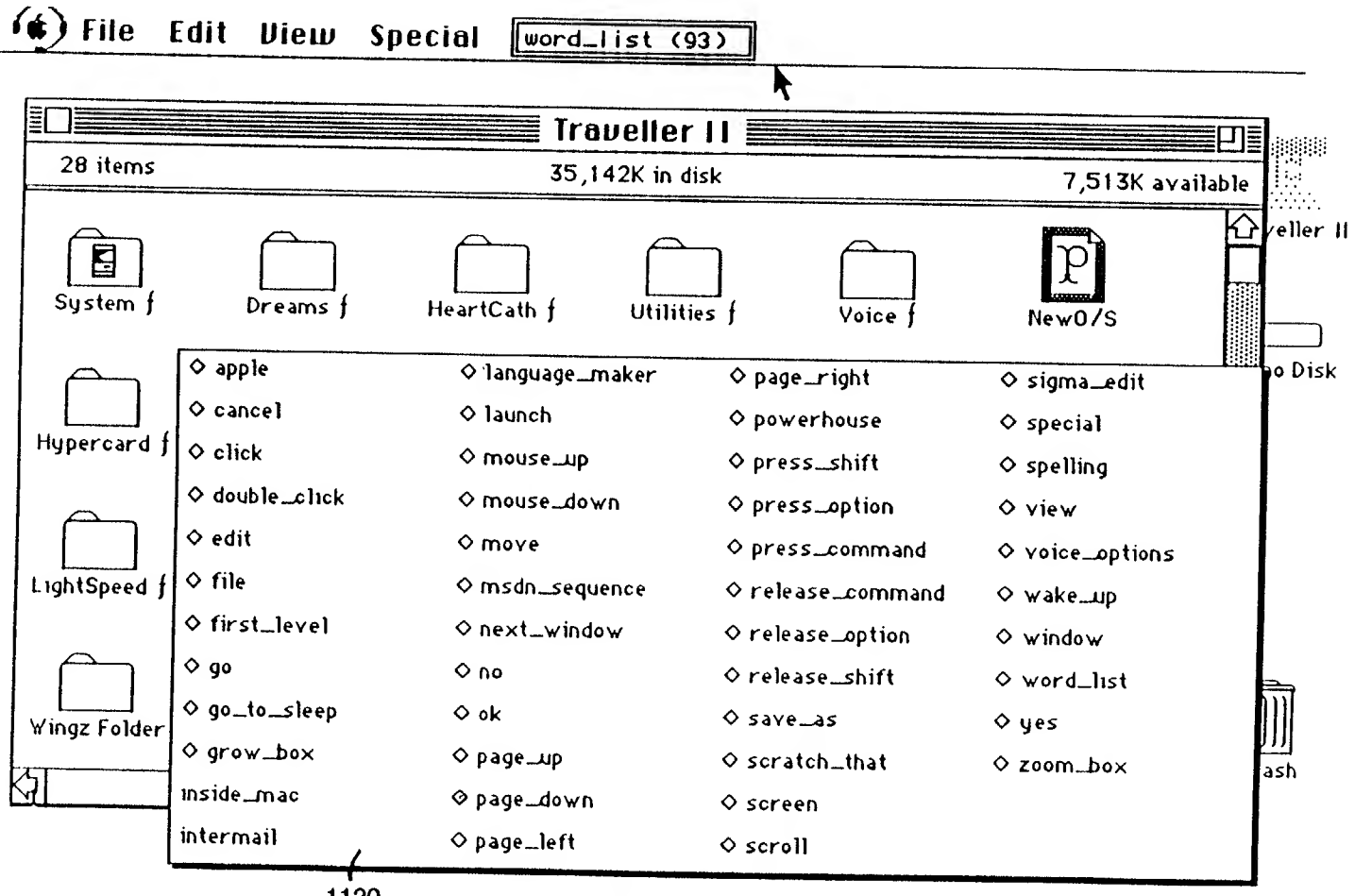

File Edit View Special
word_list (93)
Traveller II
28 items
35,142K in disk
7,513K available
System
Dreams
HeartCath
Utilities
Voice
NewO/S
Hypercard
LightSpeed
Wingz Folder
apple
cancel
click
double_click
edit
file
first_level
go
go_to_sleep
grow_box
inside_mac
intermail
language_maker
launch
mouse_up
mouse_down
move
msdn_sequence
next_window
no
ok
page_up
page_down
page_left
page_right
powerhouse
press_shift
press_option
press_command
release_command
release_option
release_shift
save_as
scratch_that
screen
scroll
sigma_edit
special
spelling
view
voice_options
wake_up
window
word_list
yes
zoom_box
1120

FIG. 27

Patent Application

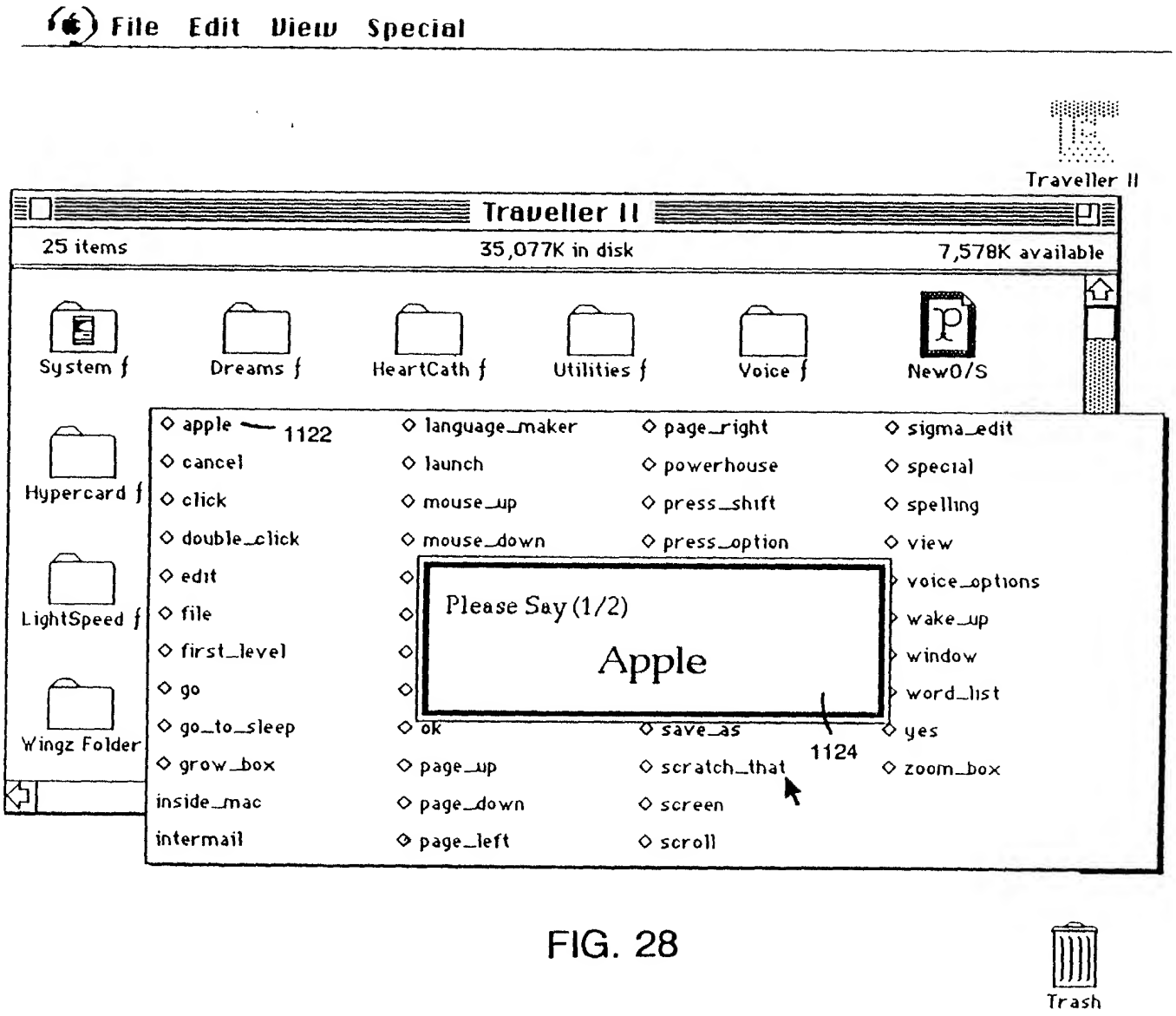


FIG. 28

TOKYO 92728760

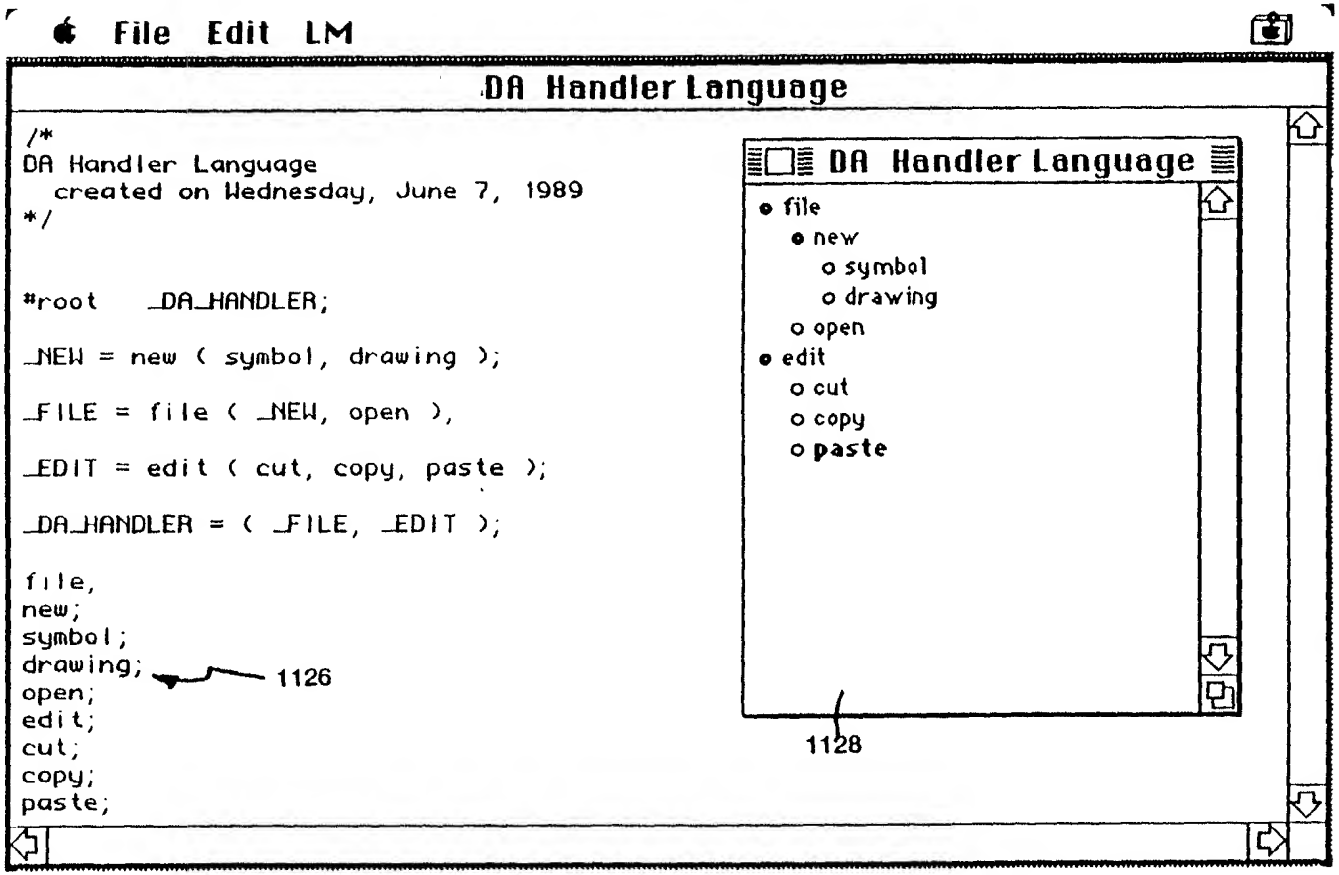


FIG. 29

DA Handler Language
Wednesday, June 7, 1989 4:54 PM

```
/*
DA Handler Language
  created on Wednesday, June 7, 1989
*/


#root    _DA_HANDLER;

_NEW = new ( symbol, drawing );

_FILE = file ( _NEW, open );

_EDIT = edit ( cut, copy, paste );

_DA_HANDLER = ( _FILE, _EDIT );

file;
new;
symbol;
drawing;
open;
edit;
cut;
copy;
paste;
```

FIG. 30

Tonto: 5223260

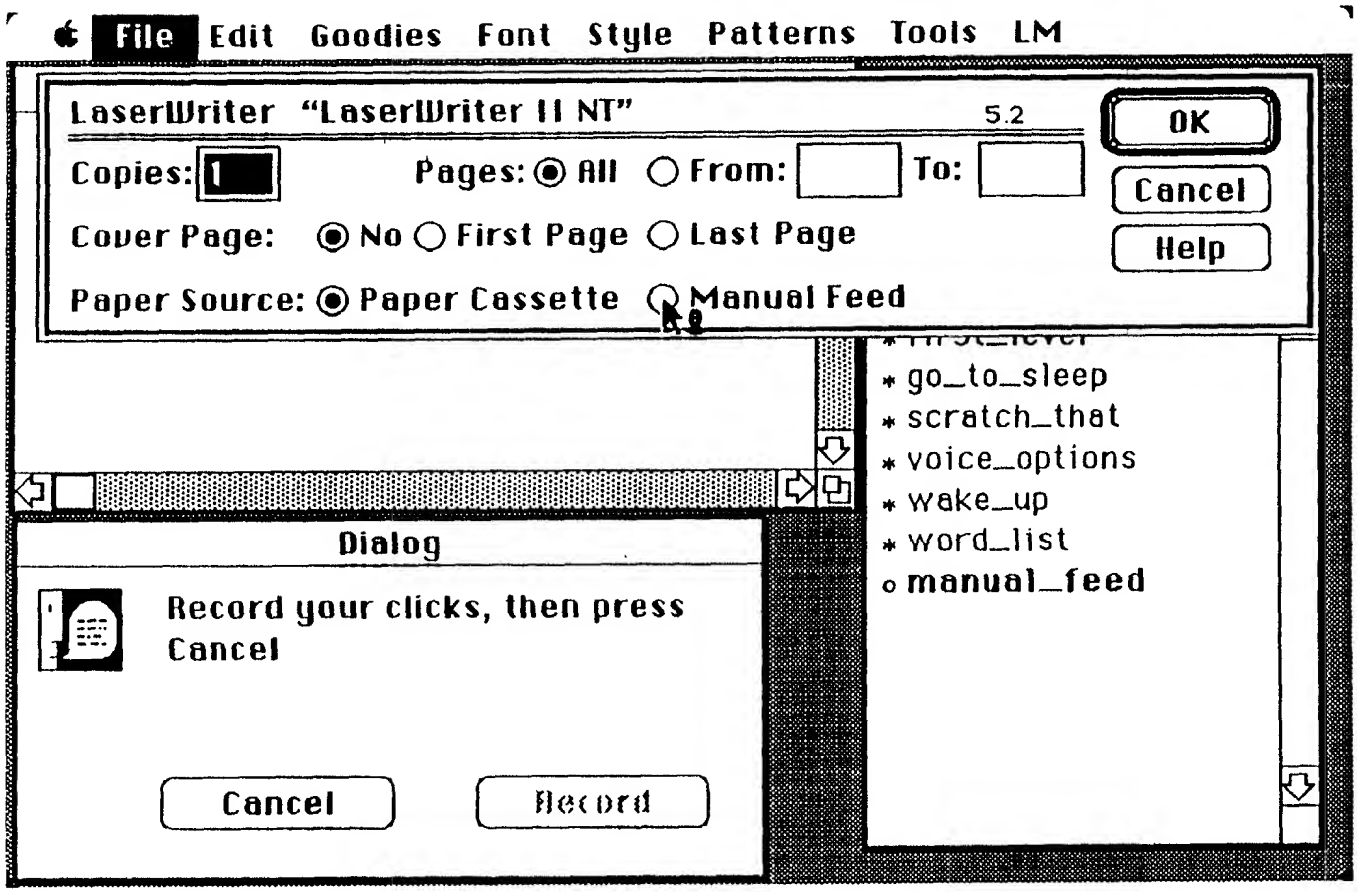


FIG. 31

The Voice Navigator with a Mac SE or Mac Plus

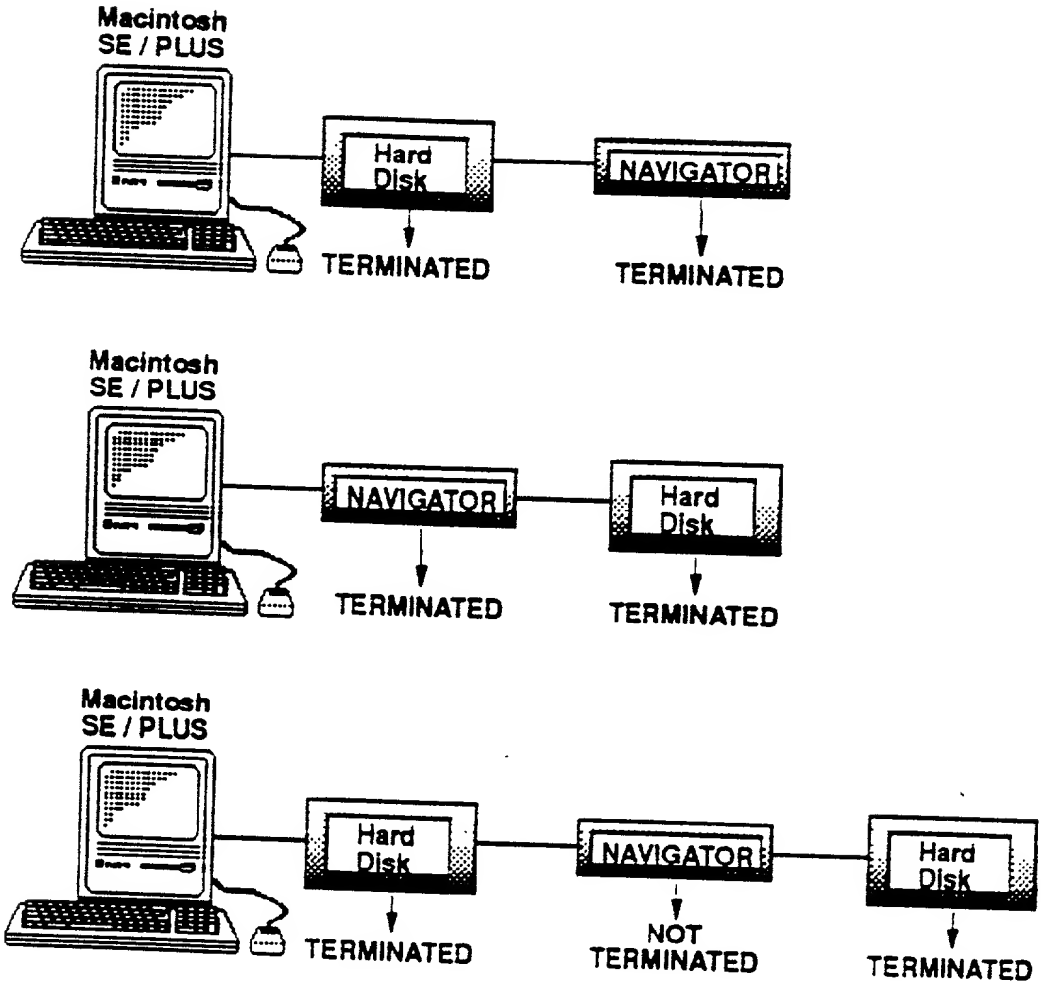


FIGURE 32

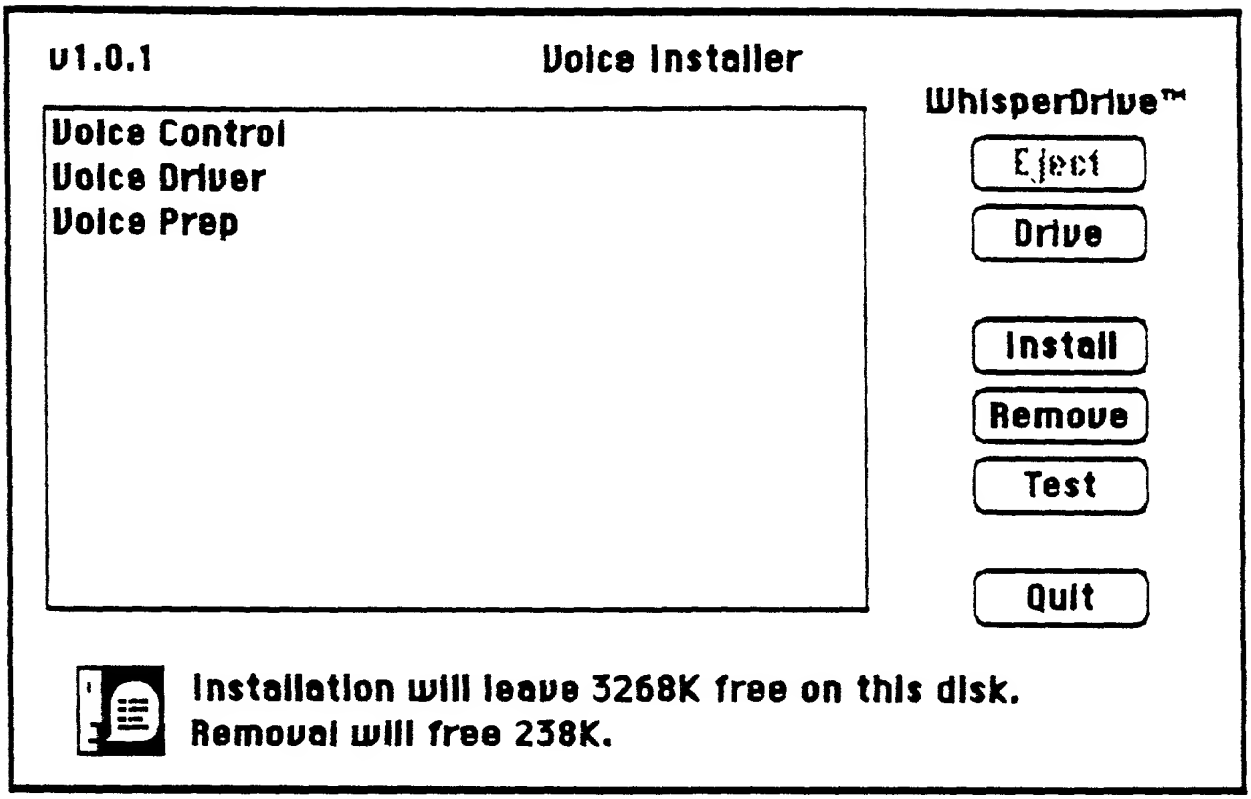

v1.0.1
Voice Installer
WhisperDrive™
Voice Control
Voice Driver
Voice Prep
Eject
Drive
Install
Remove
Test
Quit
Installation will leave 3268K free on this disk.
Removal will free 238K.

FIGURE 33

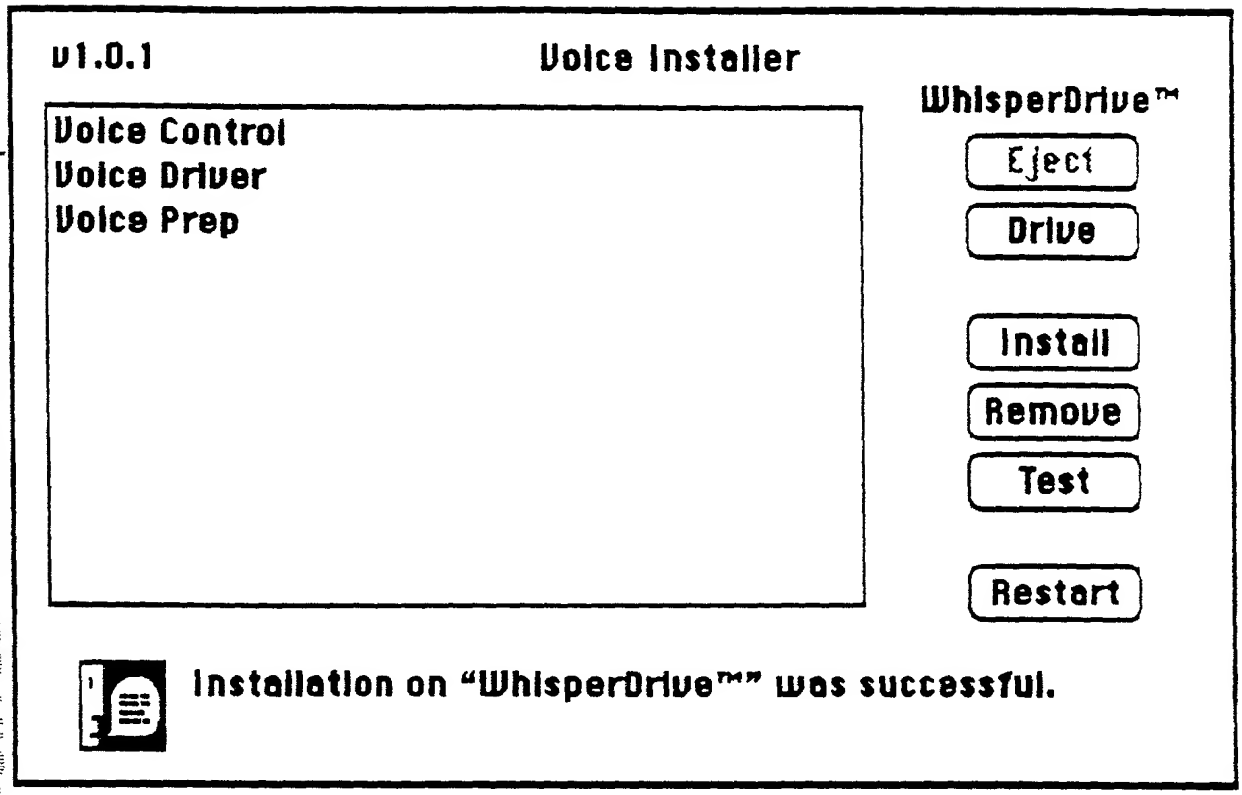

v1.0.1
Voice Installer
WhisperDrive™
Voice Control
Voice Driver
Voice Prep
Eject
Drive
Install
Remove
Test
Restart
Installation on "WhisperDrive™" was successful.

FIGURE 34

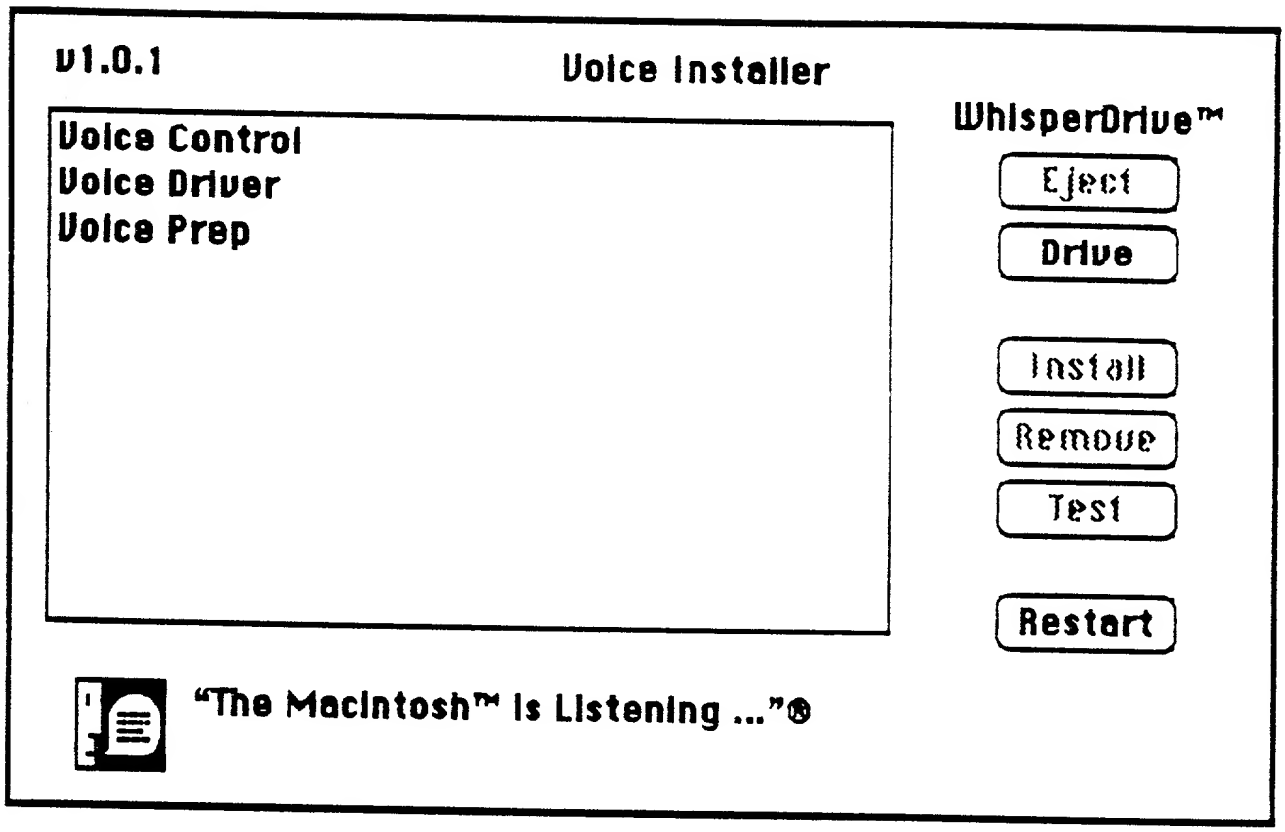

v1.0.1
Voice Installer
Voice Control
Voice Driver
Voice Prep
WhisperDrive™
Eject
Drive
Install
Remove
Test
Restart
"The Macintosh™ is Listening ..."®

FIGURE 35

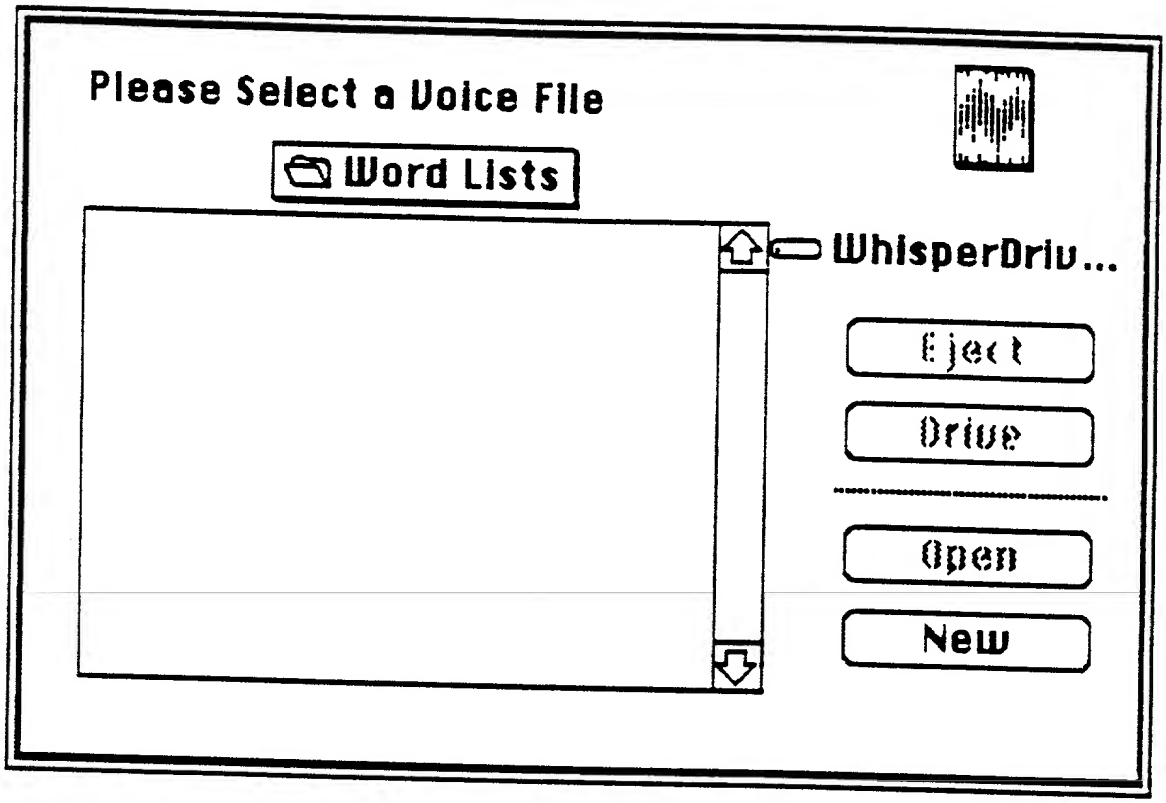

Please Select a Voice File
Word Lists
WhisperDriv...
Eject
Drive
Open
New

FIGURE 36

FORTE0 92283260

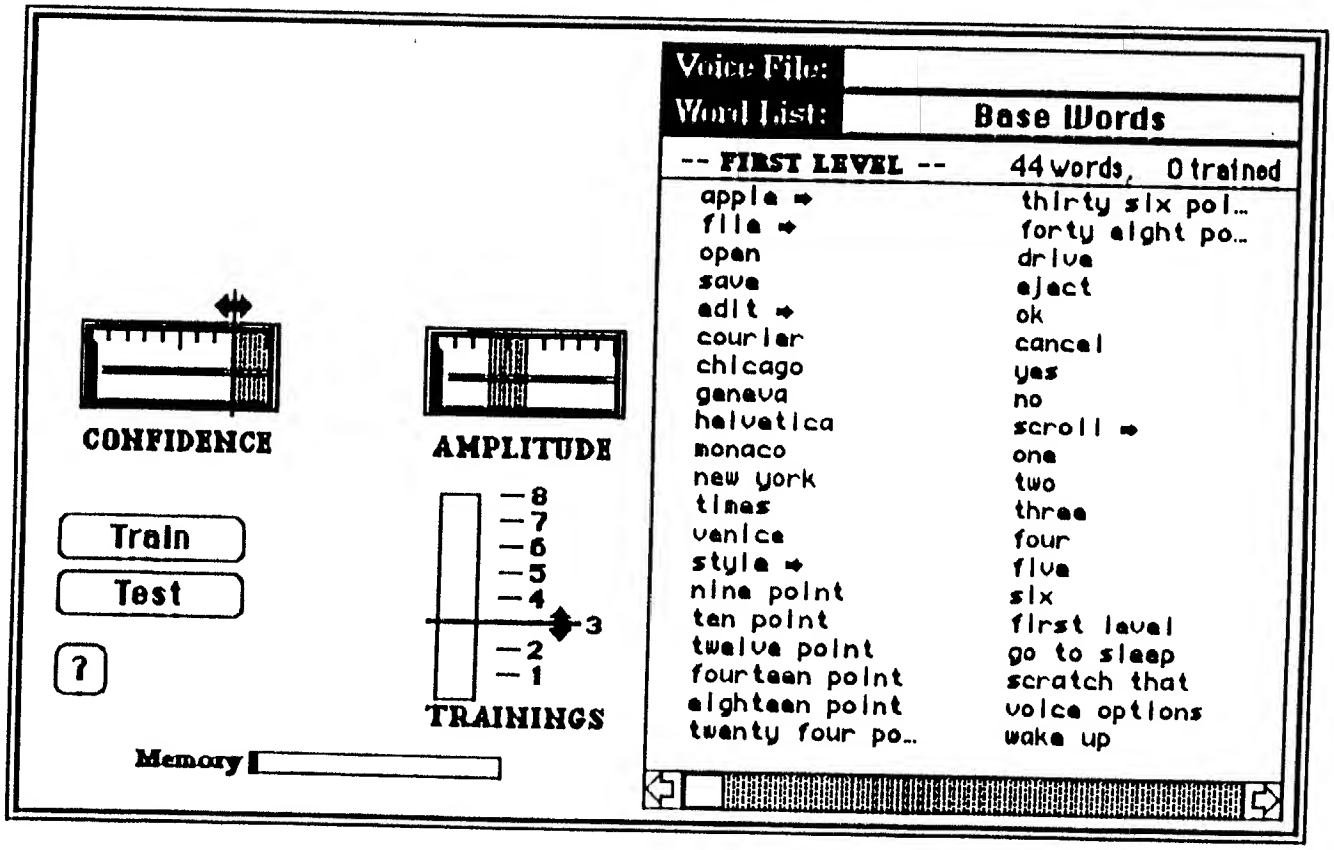


FIGURE 37

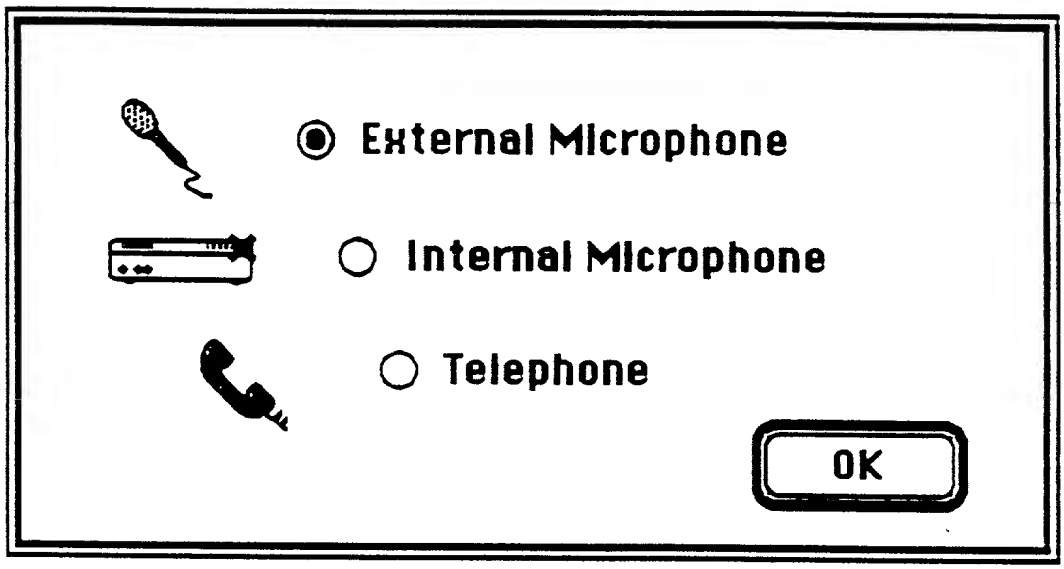


FIGURE 38

FONT20 9826826

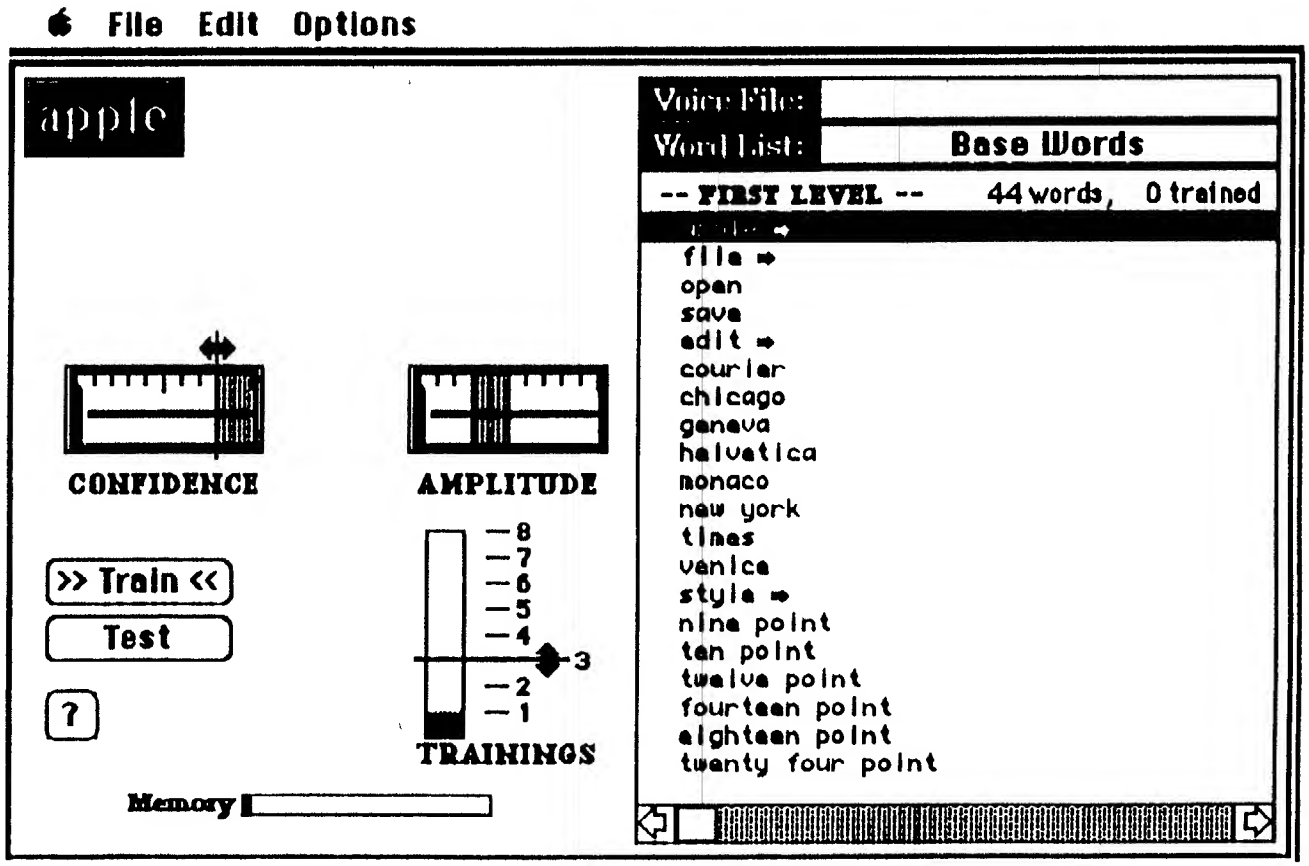


FIGURE 39

FONT20" 5828260

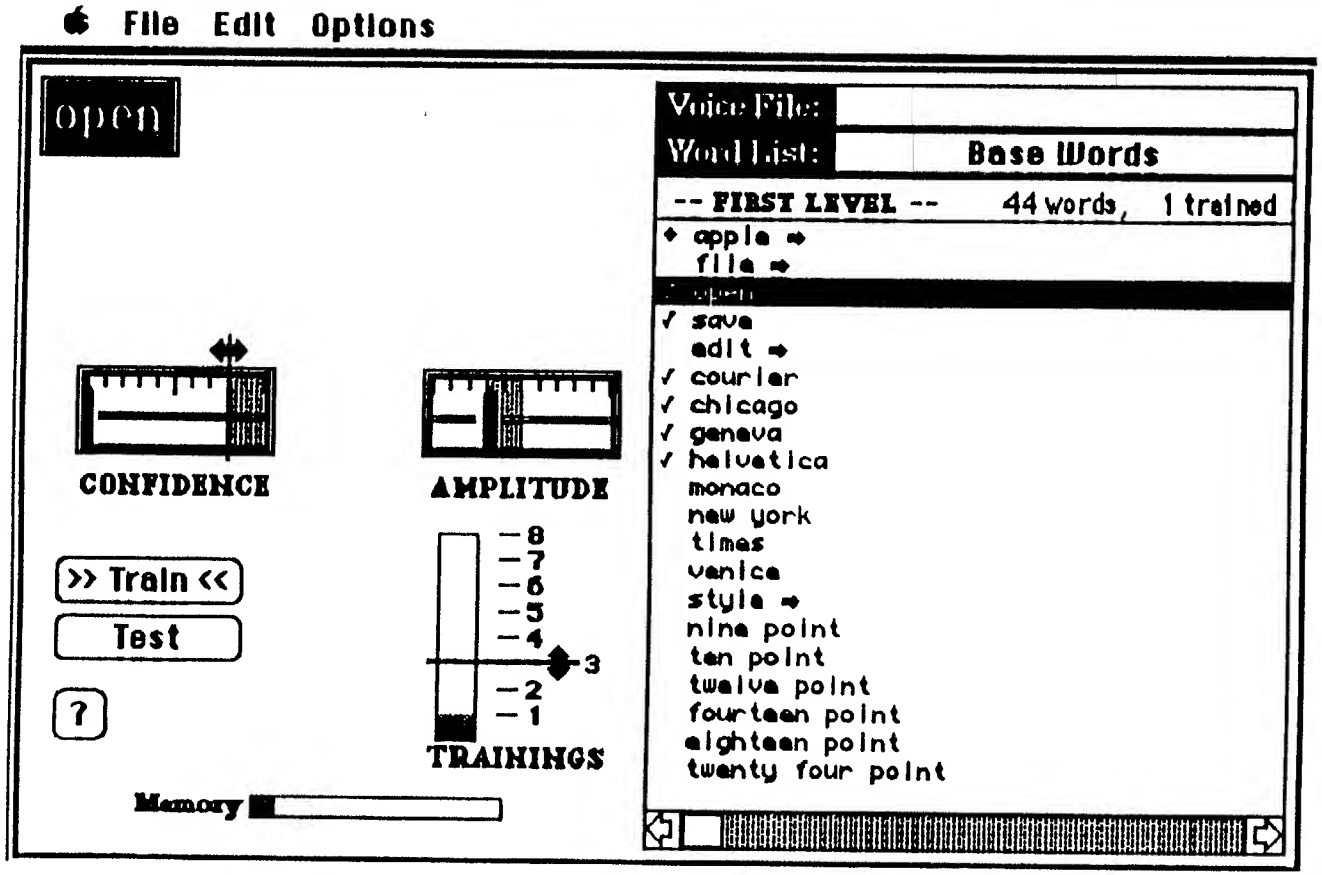


FIGURE 40

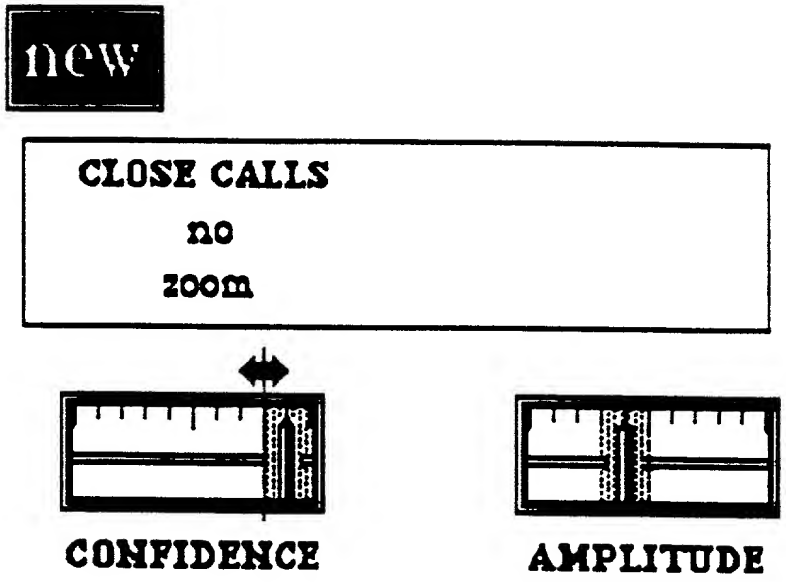


FIGURE 41

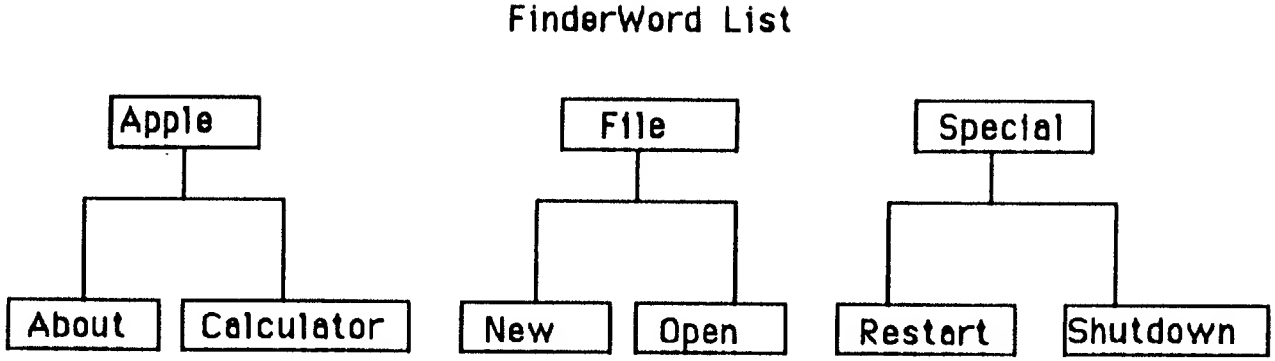
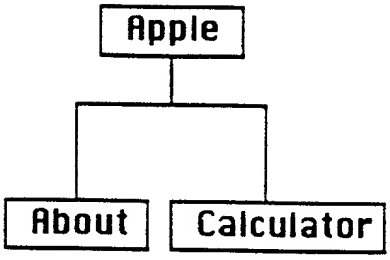

FinderWord List
Apple
About
Calculator
File
New
Open
Special
Restart
Shutdown

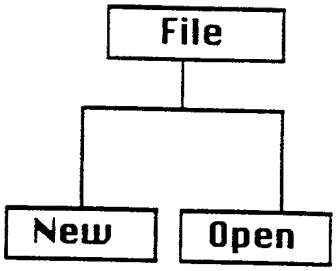
FIGURE 42



First Level

Next Level

FIGURE 43



First Level

Next Level

FIGURE 44

TOATEO" 9626260

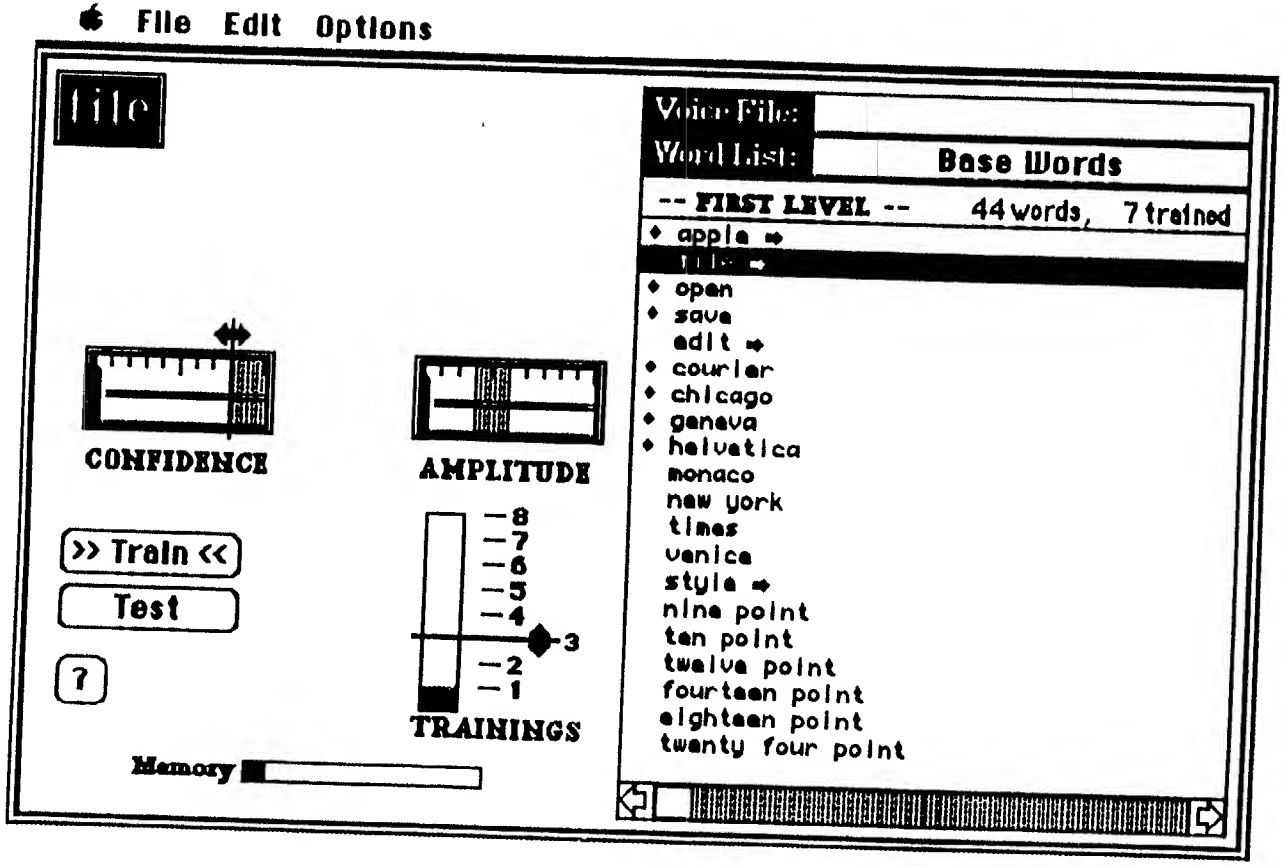


FIGURE 45

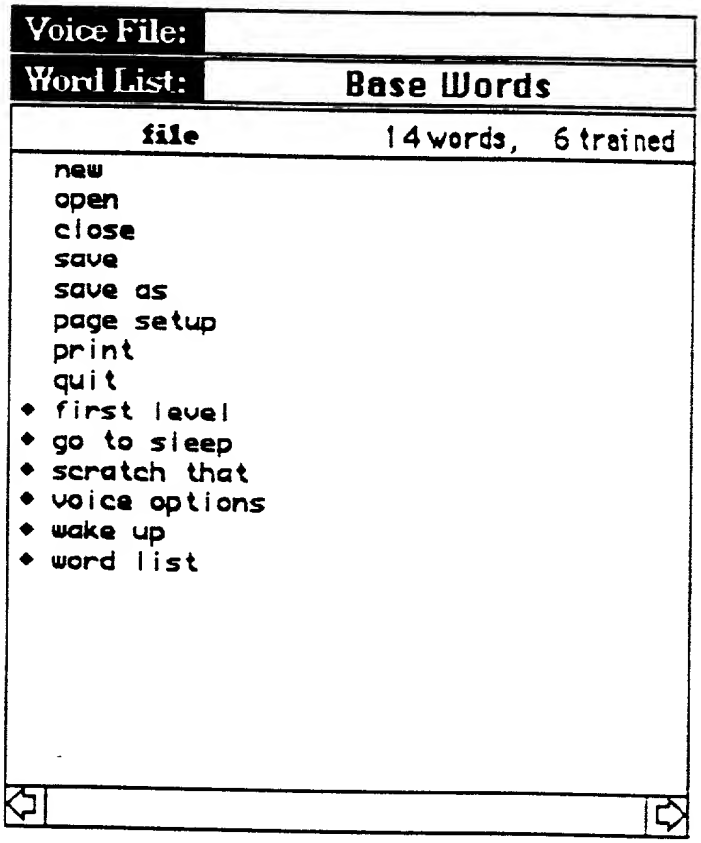

Voice File:
Word List:
Base Words
file
14 words, 6 trained
new
open
close
save
save as
page setup
print
quit
first level
go to sleep
scratch that
voice options
wake up
word list

FIGURE 46

FOMTEC 5826760

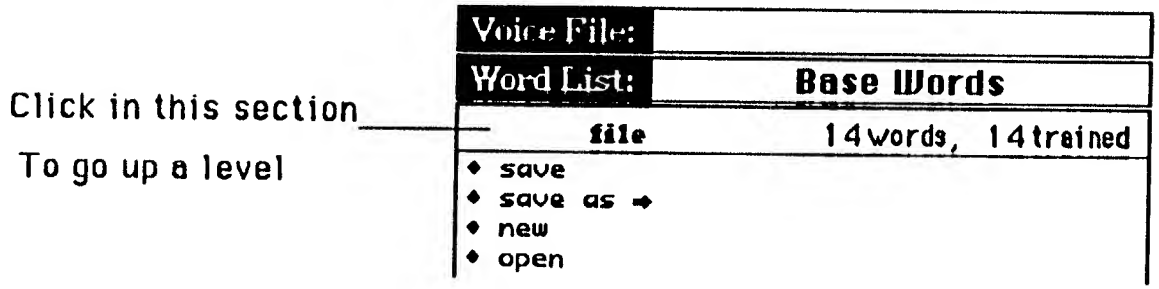


FIGURE 47

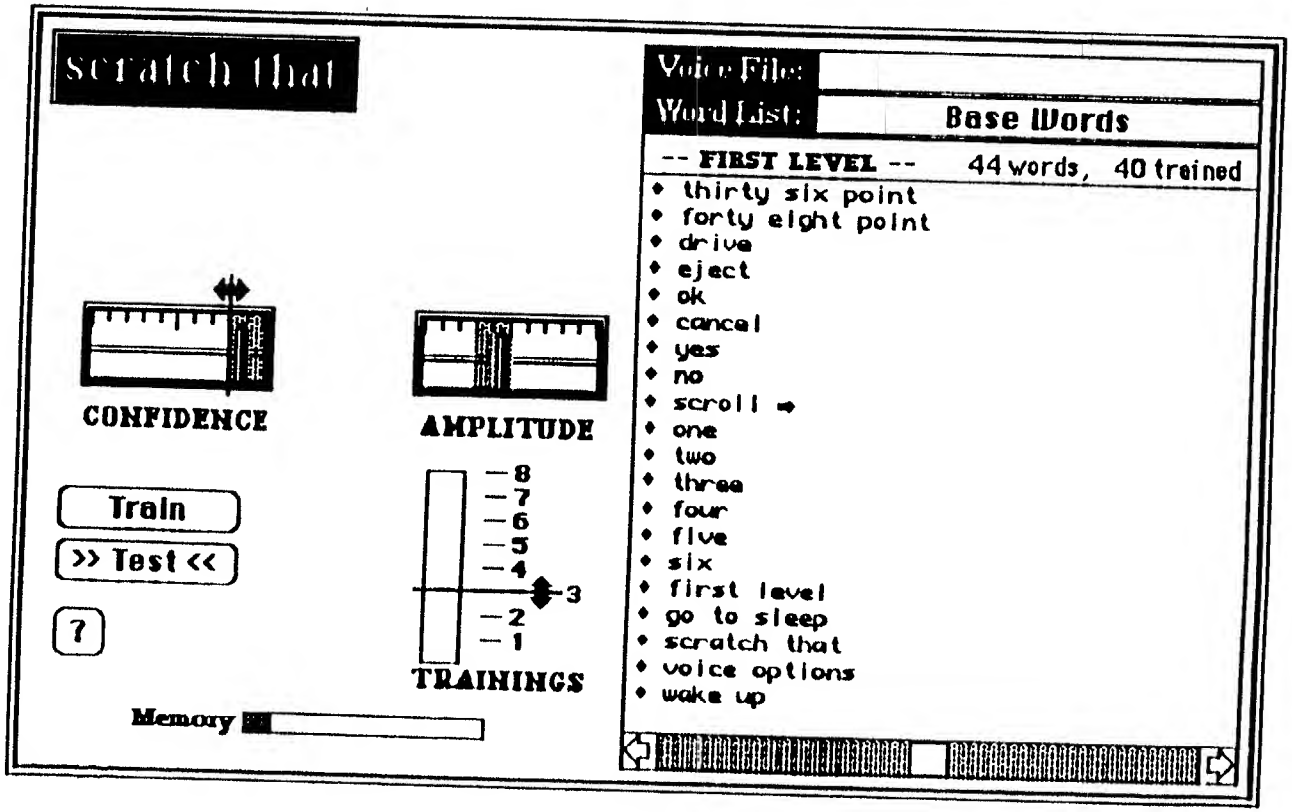

scratch that
Voice File:
Word List:
Base Words
-- FIRST LEVEL --
44 words, 40 trained
thirty six point
forty eight point
drive
eject
ok
cancel
yes
no
scroll ➡
one
two
three
four
five
six
first level
go to sleep
scratch that
voice options
wake up
CONFIDENCE
AMPLITUDE
Train
>> Test <<
?
8
7
6
5
4
3
2
1
TRAININGS
Memory

FIGURE 48

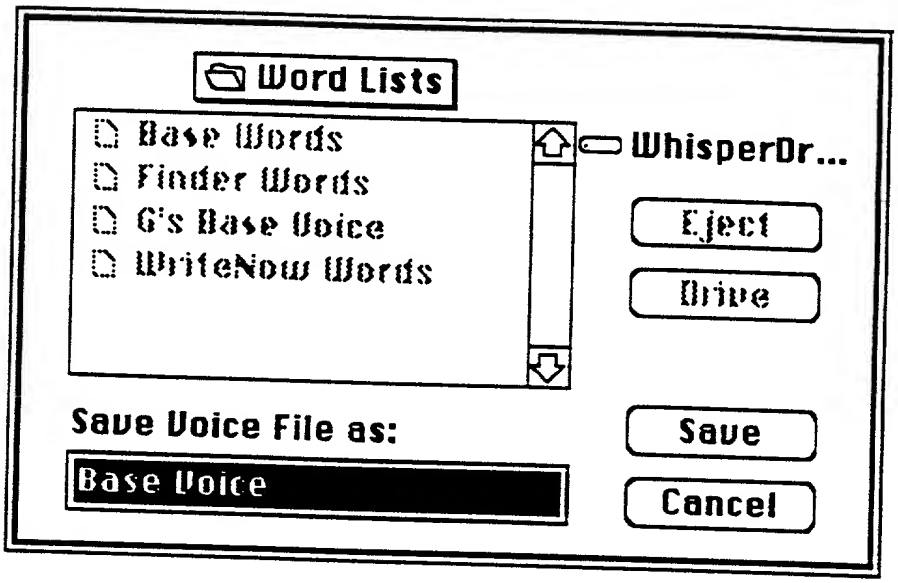

Word Lists
Base Words
Finder Words
G's Base Voice
WriteNow Words
WhisperDr...
Eject
Drive
Save Voice File as:
Base Voice
Save
Cancel

FIGURE 49

PATENT 5268260

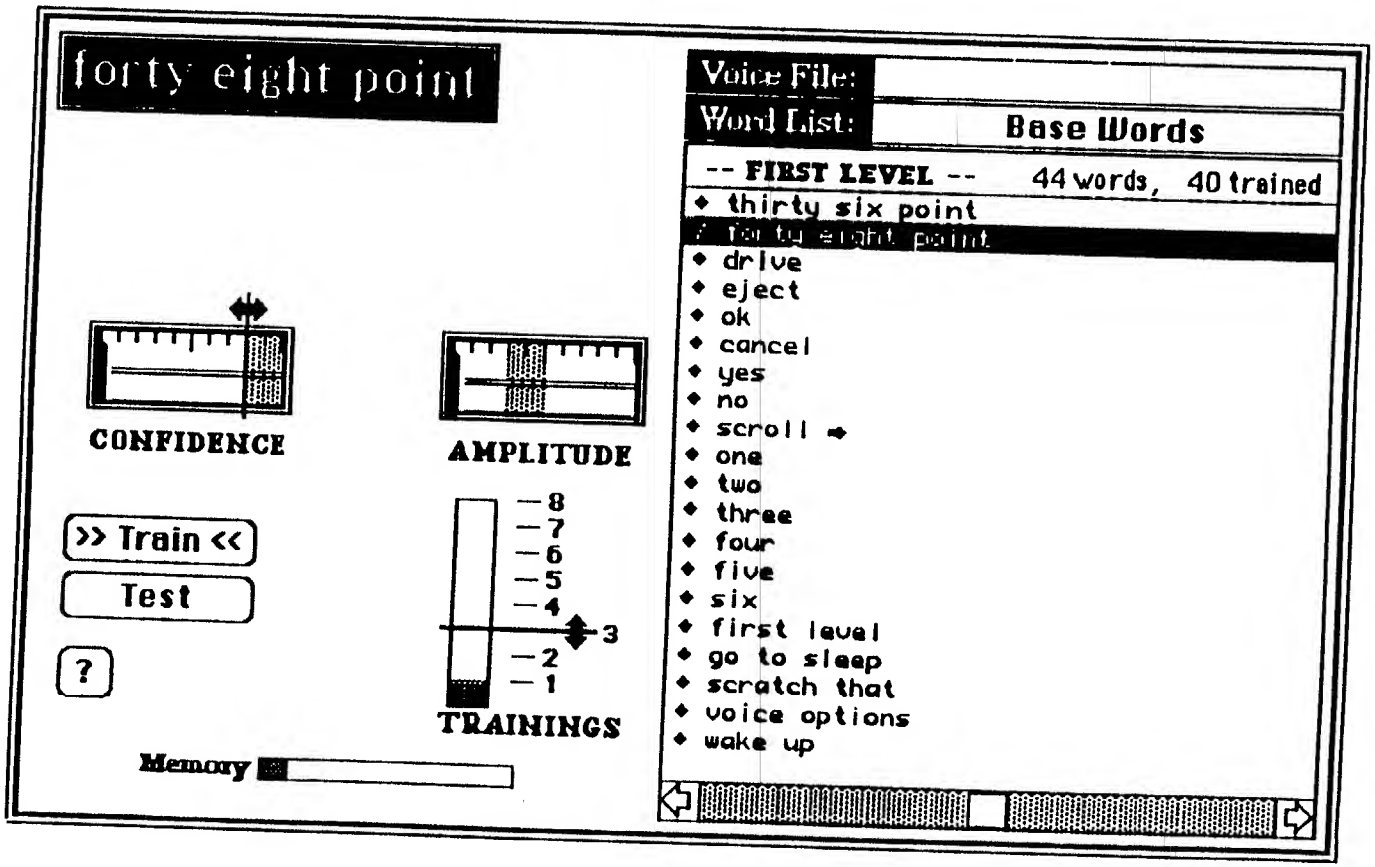


FIGURE 50

Font20" 5826860

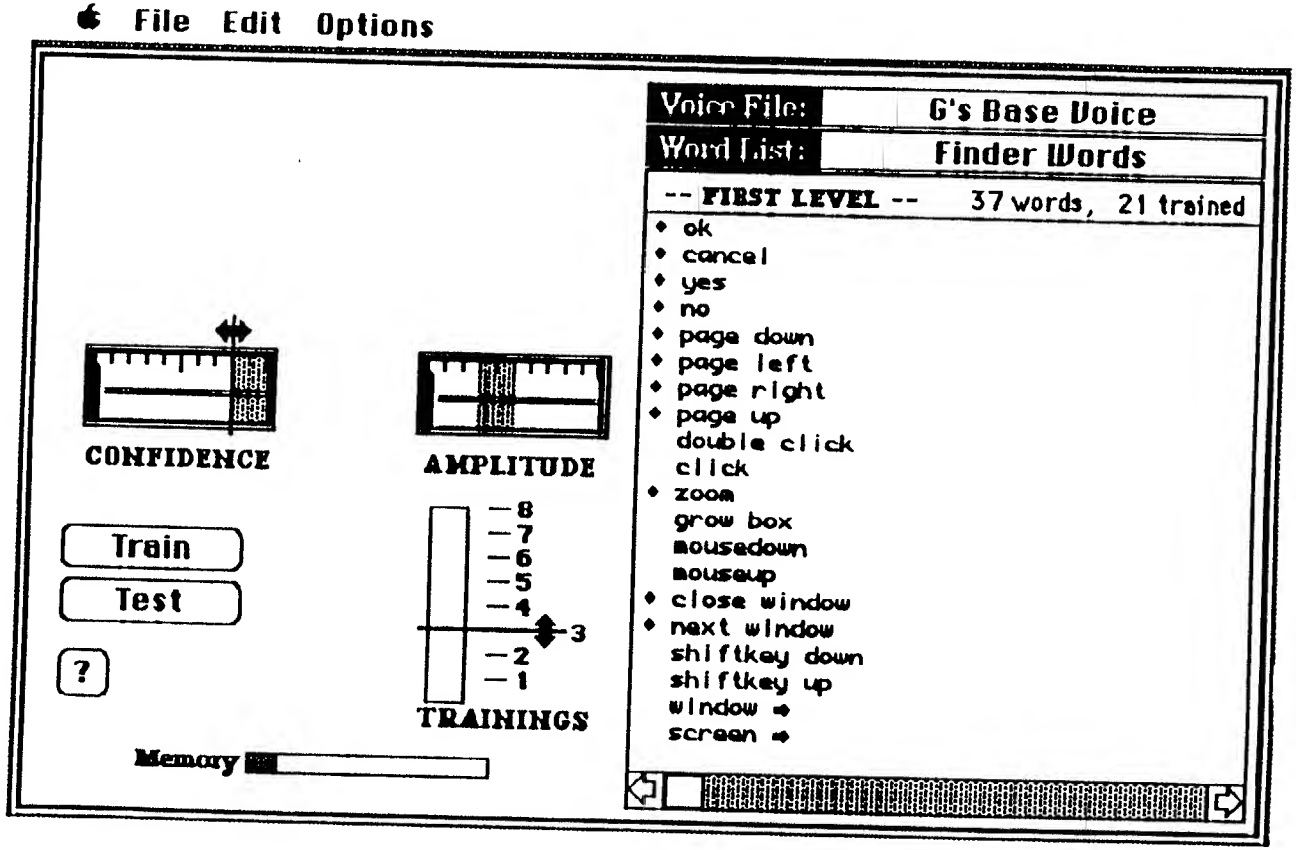


FIGURE 51

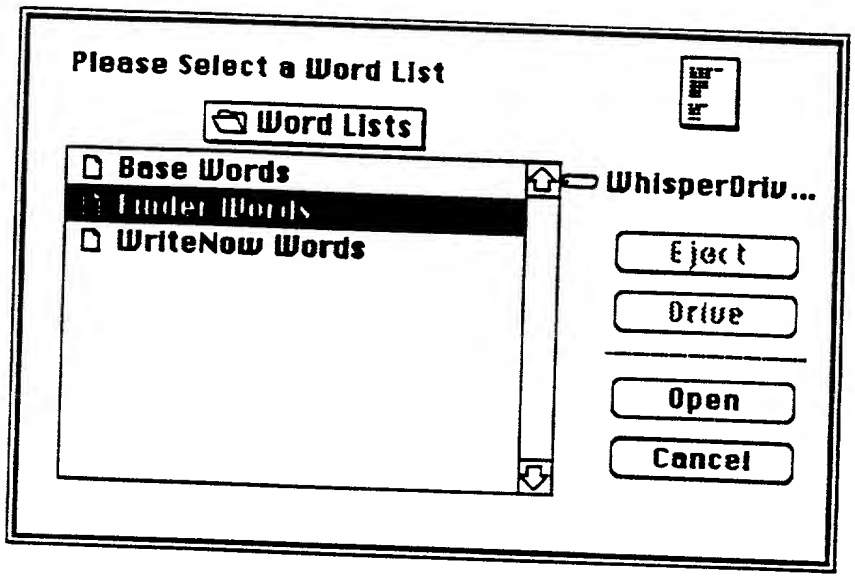

Please Select a Word List
Word Lists
Base Words
Finder Words
WriteNow Words
WhisperDriv...
Eject
Drive
Open
Cancel

FIGURE 52

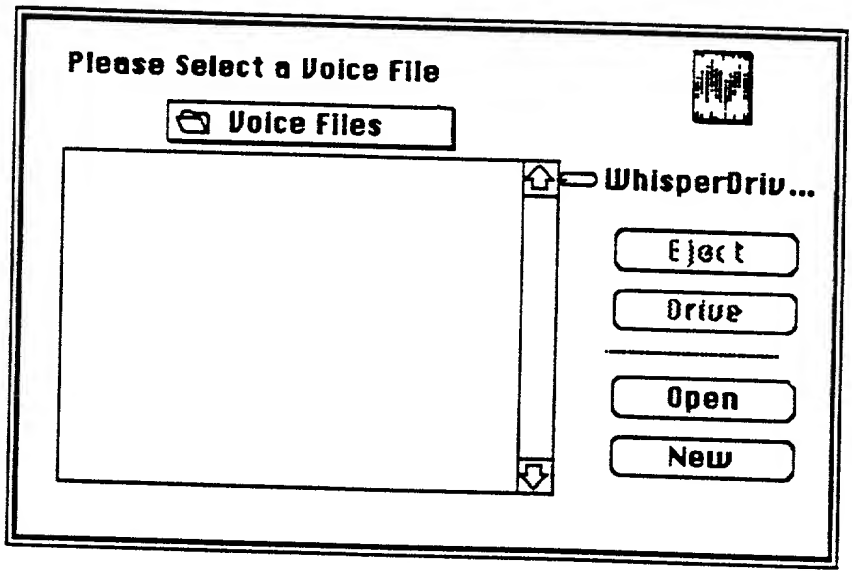

Please Select a Voice File
Voice Files
WhisperDriv...
Eject
Drive
Open
New

FIGURE 53

TOMTOM 92258260

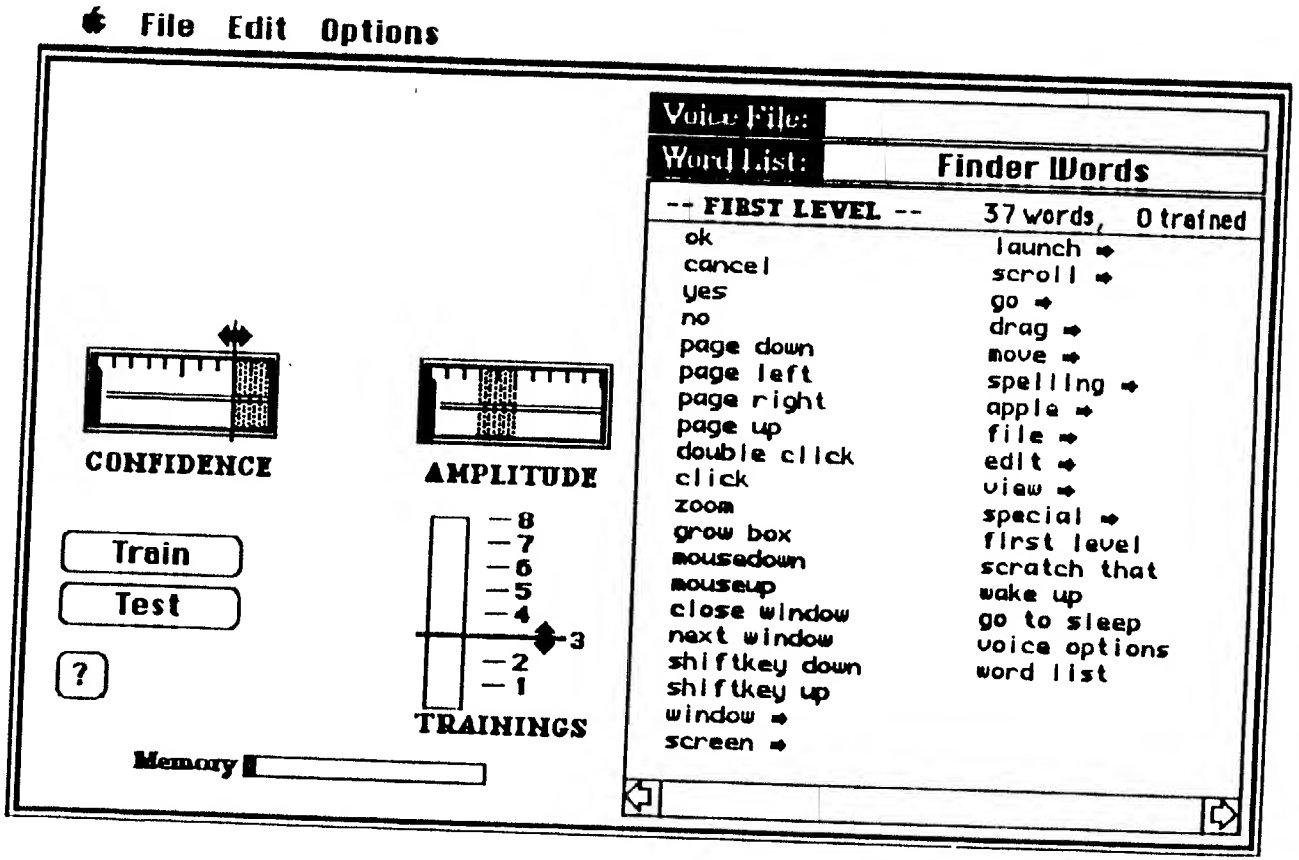


FIGURE 54

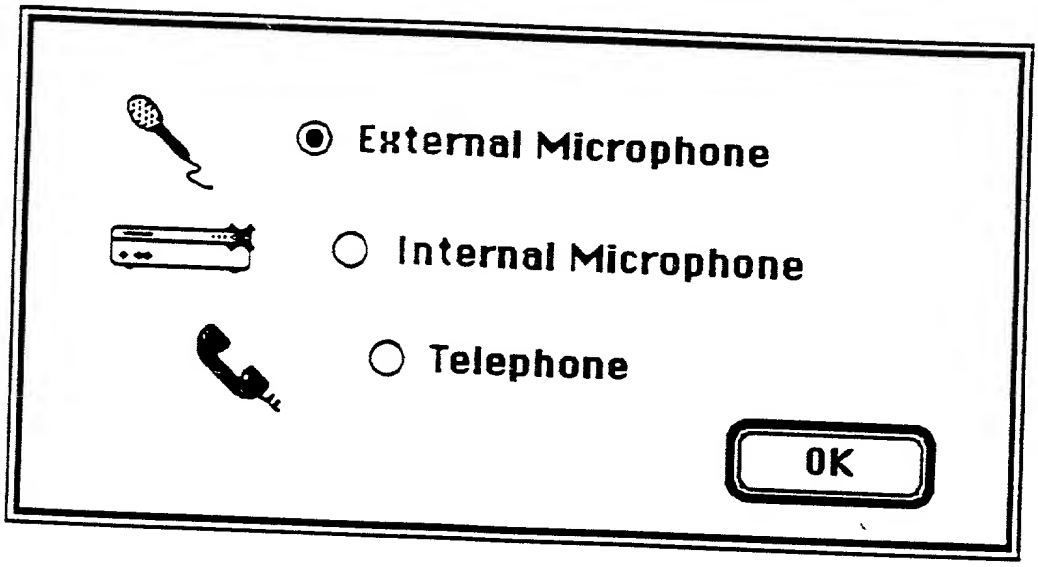


FIGURE 55

PATENT: 5828260

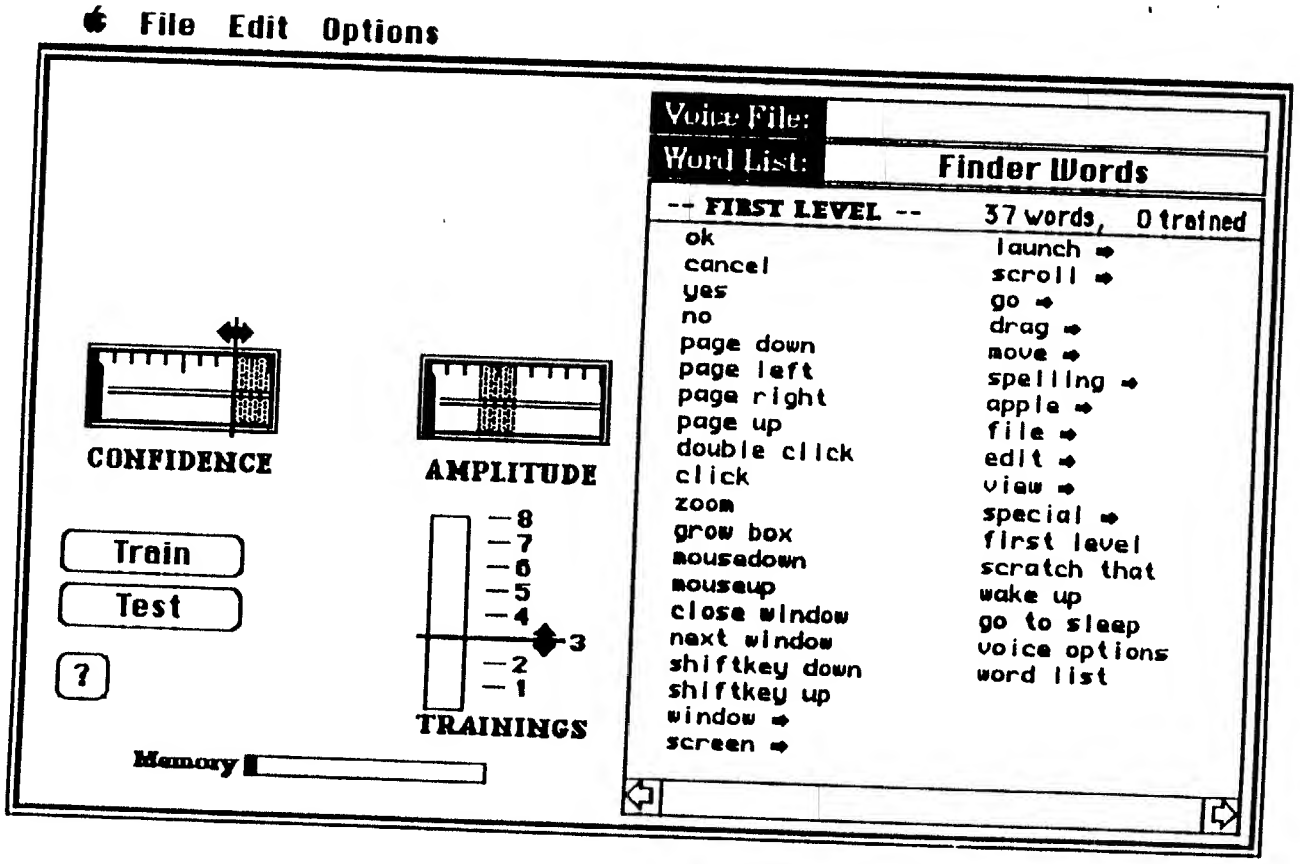


FIGURE 56

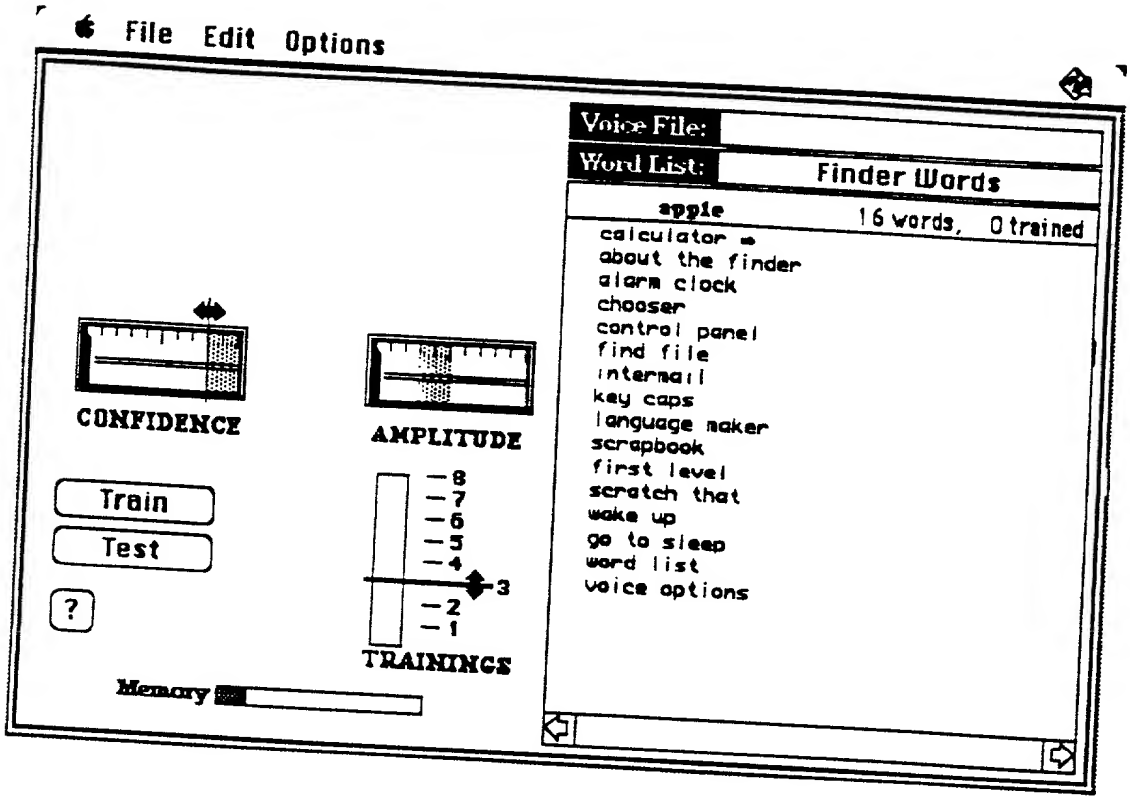

File Edit Options
Voice File:
Word List:
Finder Words
apple
16 words, 0 trained
calculator
about the finder
alarm clock
chooser
control panel
find file
internail
key caps
language maker
scrapbook
first level
scratch that
wake up
go to sleep
word list
voice options
CONFIDENCE
AMPLITUDE
Train
Test
?
8
7
6
5
4
3
2
1
TRAININGS
Memory

FIGURE 57

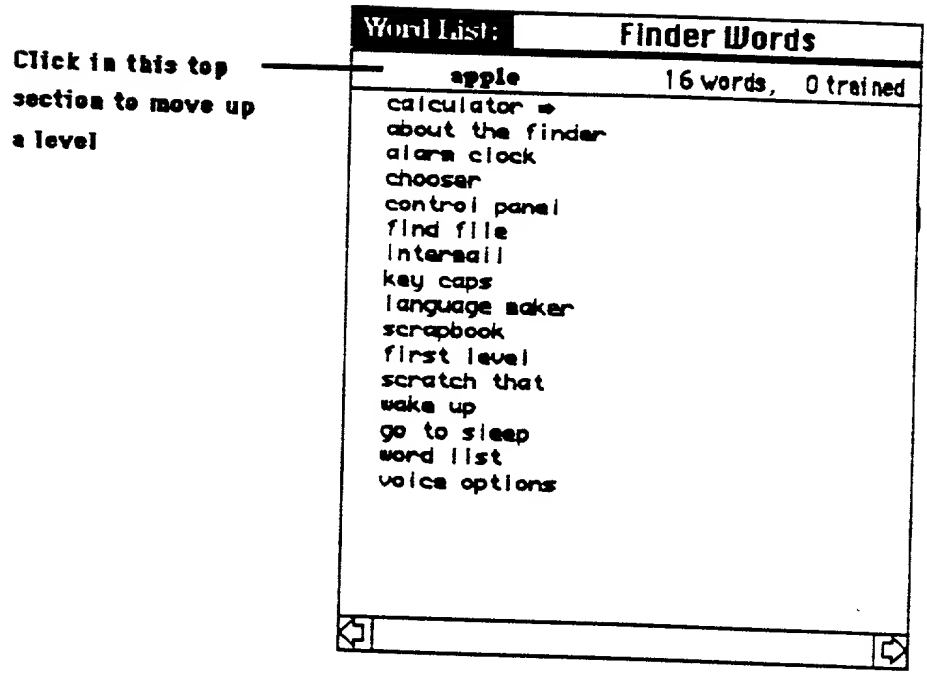

Click in this top section to move up a level
Word List:
Finder Words
apple
16 words, 0 trained
calculator
about the finder
alarm clock
chooser
control panel
find file
Internail
key caps
language maker
scrapbook
first level
scratch that
wake up
go to sleep
word list
voice options

FIGURE 58

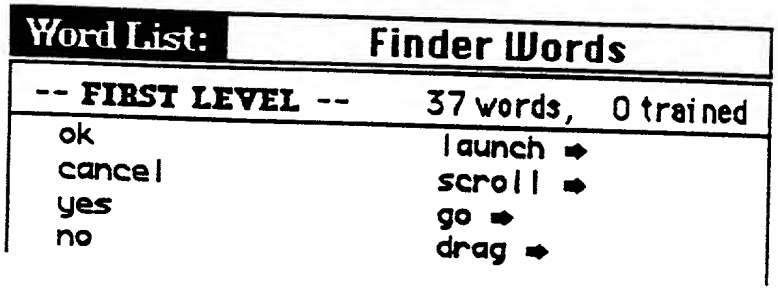

Word List:
Finder Words
-- FIRST LEVEL --
37 words, 0 trained
ok
cancel
yes
no
launch
scroll
go
drag

FIGURE 59

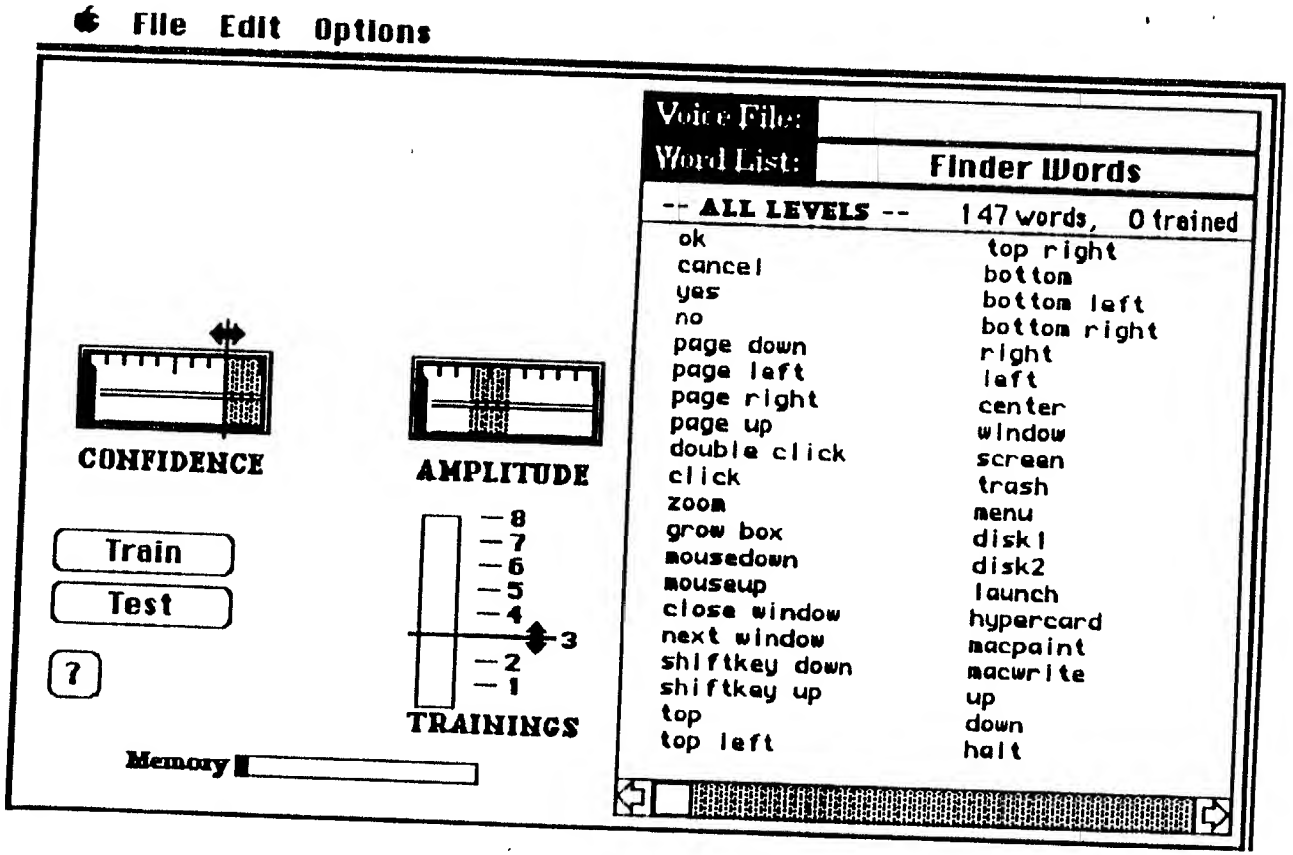

File Edit Options
CONFIDENCE
AMPLITUDE
Train
Test
?
8
7
6
5
4
3
2
1
TRAININGS
Memory
Voice File:
Word List:
Finder Words
-- ALL LEVELS --
147 words, 0 trained
ok
cancel
yes
no
page down
page left
page right
page up
double click
click
zoom
grow box
mousedown
mouseup
close window
next window
shiftkey down
shiftkey up
top
top left
top right
bottom
bottom left
bottom right
right
left
center
window
screen
trash
menu
disk1
disk2
launch
hypercard
macpaint
macwrite
up
down
halt

FIGURE 60

Attorney Docket No. 5150-3

scroll ➡
go ➡
move ➡
spelling ➡
apple ➡
file ➡
edit ➡
view ➡
special ➡
first level

FIGURE 61

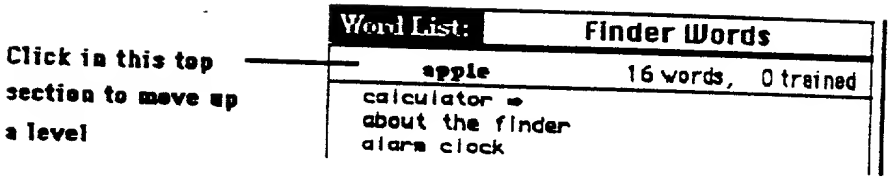


FIGURE 62

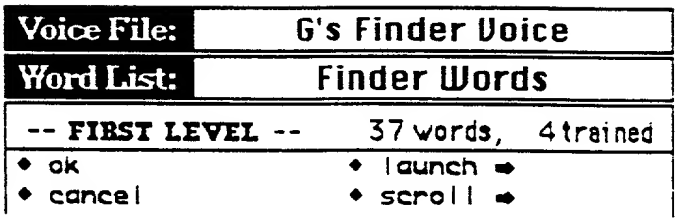


FIGURE 64

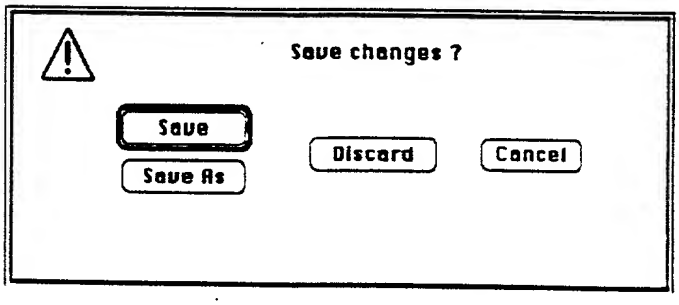


FIGURE 63

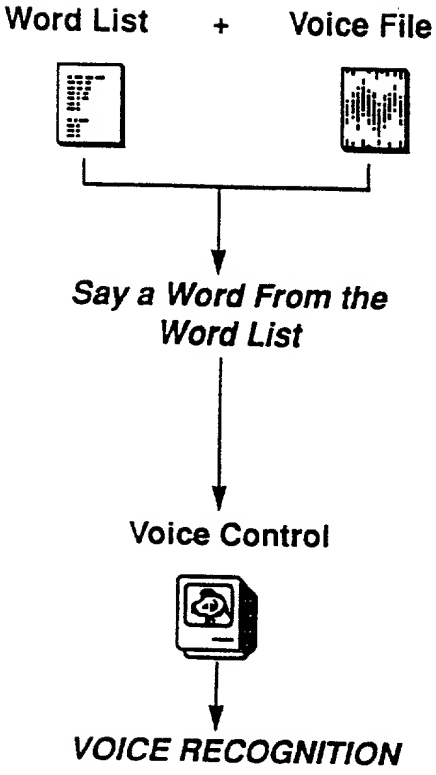


FIGURE 65

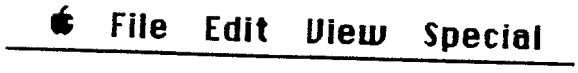


FIGURE 66

TOMTOM 5242260

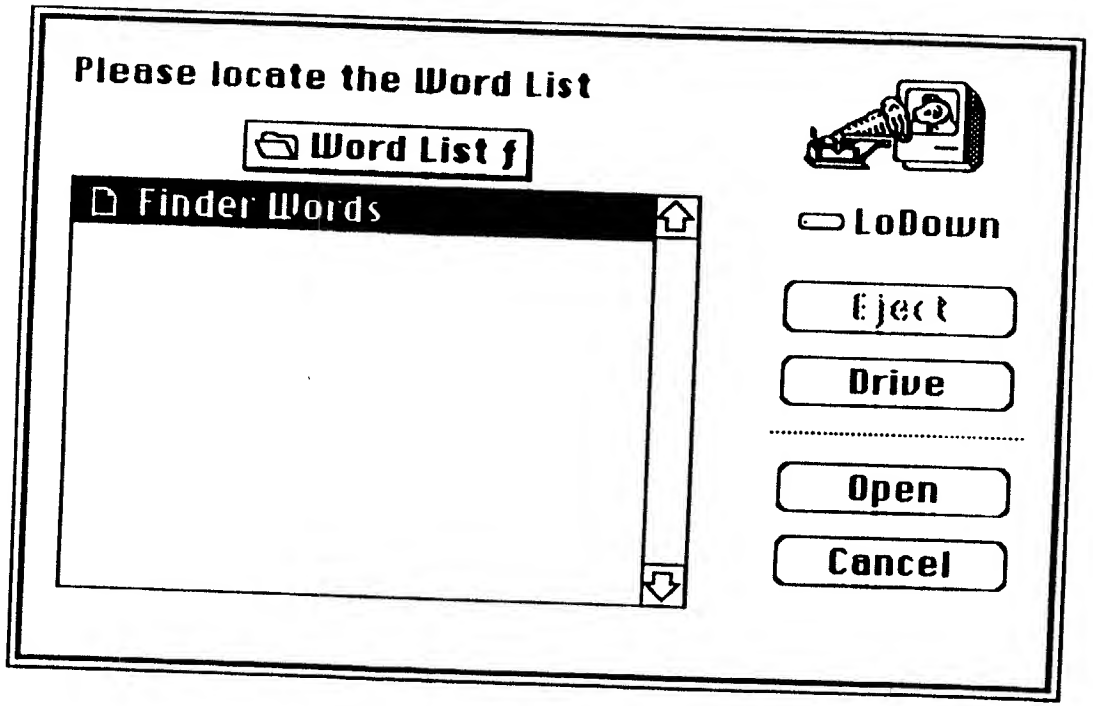


FIGURE 67

T0nT20" 5826260

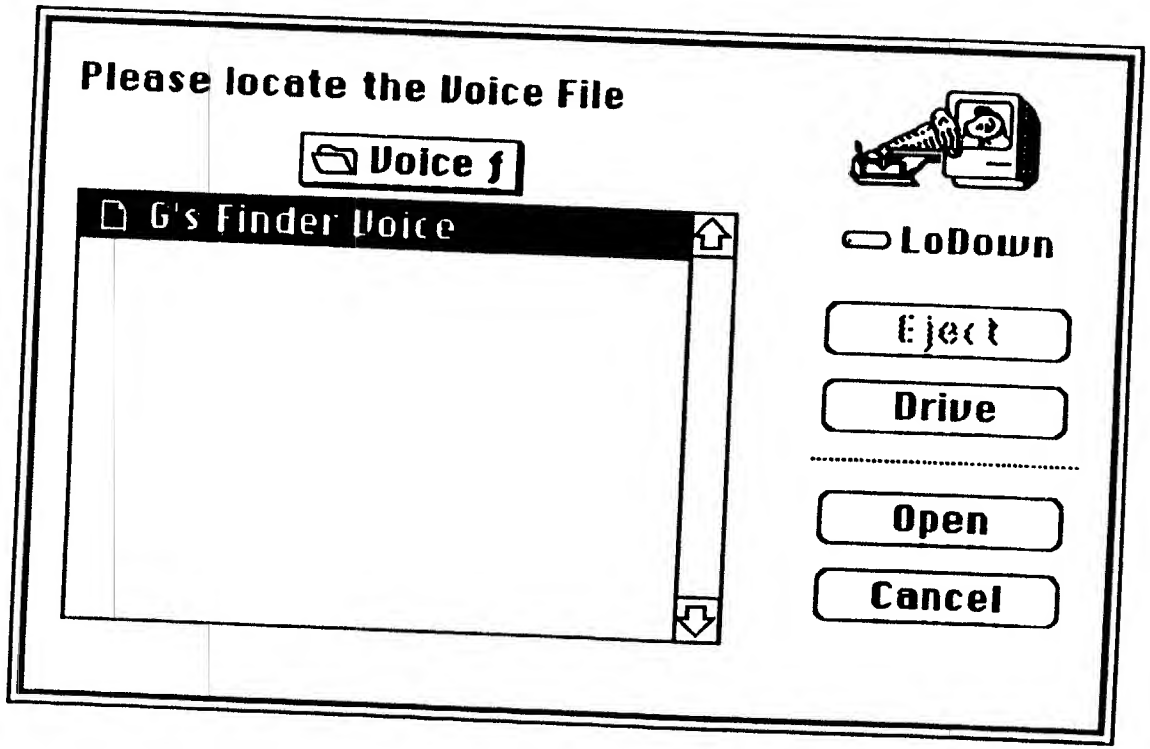


FIGURE 68

Patent Application Serial No. 08/976,042

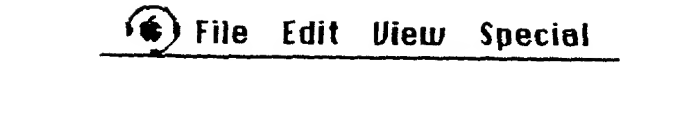


FIGURE 69

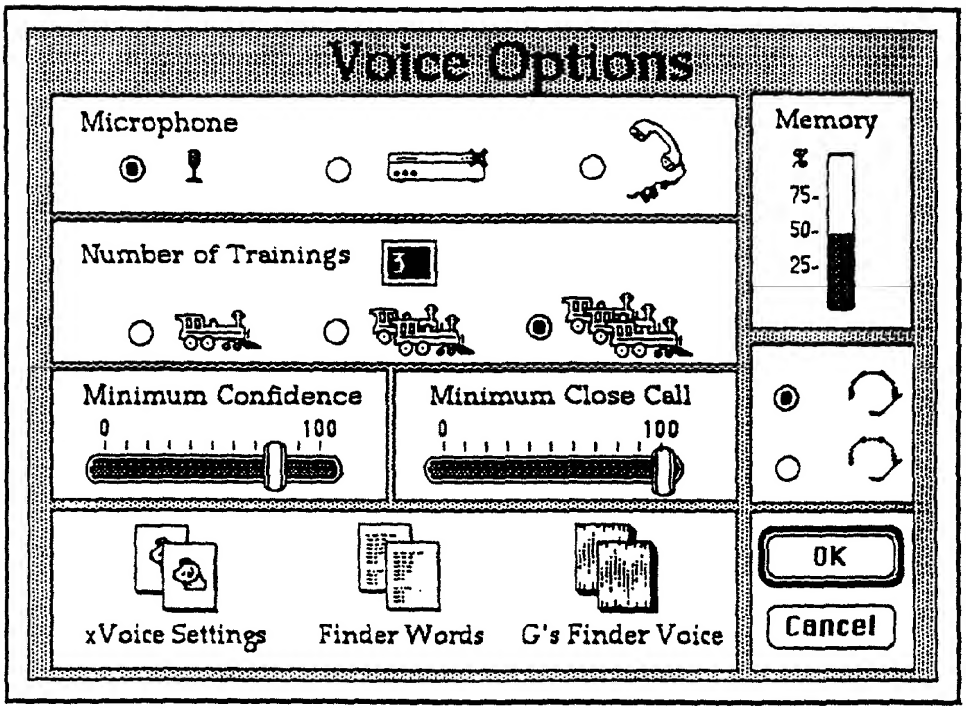


FIGURE 70

FIGURE 71

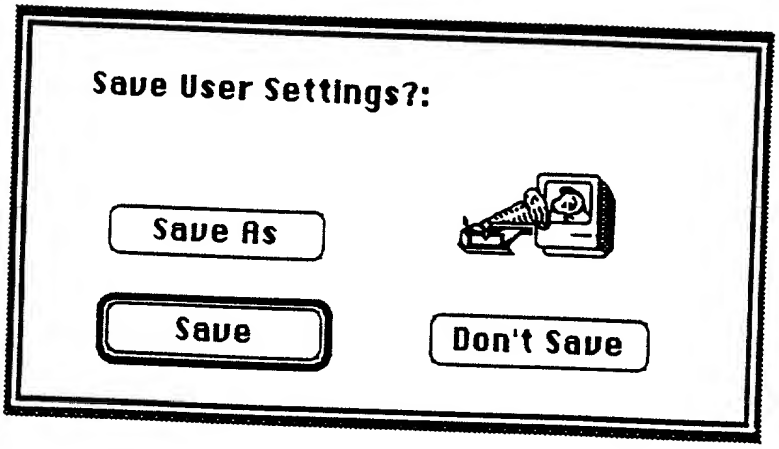


FIGURE 72

Patent Application Publication Sep. 25, 2008 Sheet 73 of 93 US 2008/0235621 A1

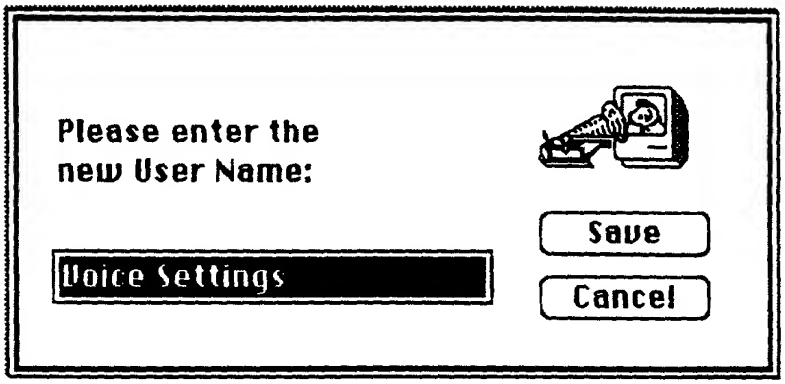


FIGURE 73

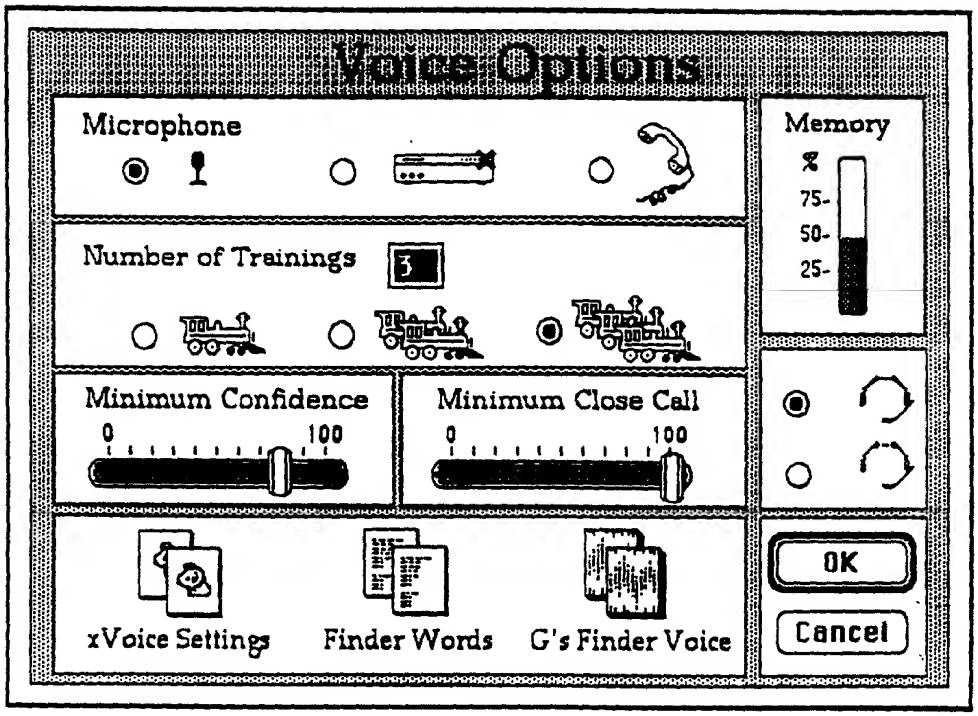

Voice Options
Microphone
Memory
%
75-
50-
25-
Number of Trainings
3
Minimum Confidence
0
100
Minimum Close Call
0
100
OK
Cancel
xVoice Settings
Finder Words
G's Finder Voice

FIGURE 74

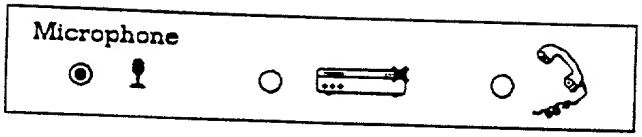


FIGURE 75

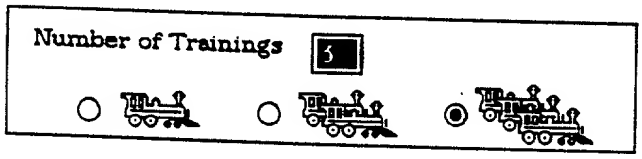


FIGURE 76

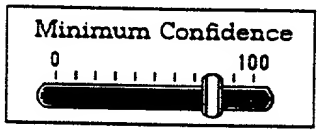


FIGURE 77

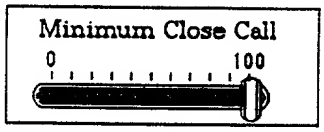


FIGURE 78

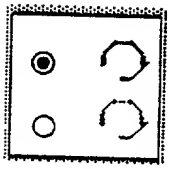


FIGURE 79

FIGURE 80

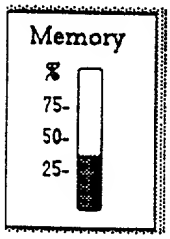


FIGURE 81

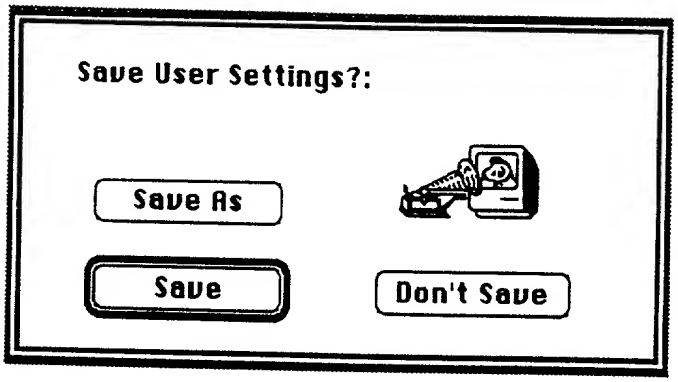


FIGURE 82

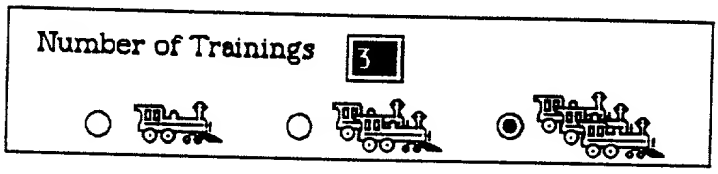


FIGURE 83

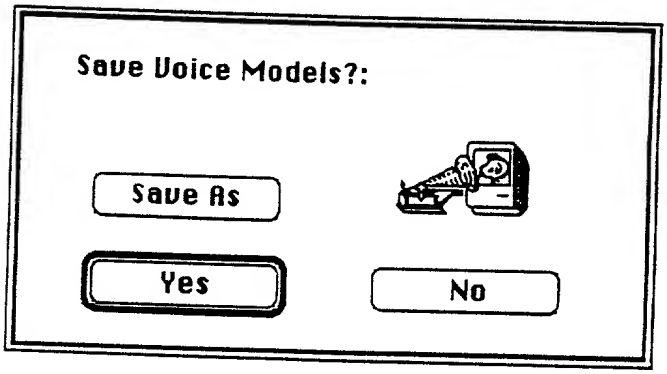


FIGURE 84

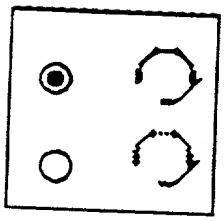


FIGURE 85

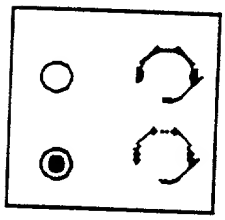


FIGURE 86

NO Word List

NO Voice File

FIGURE 87

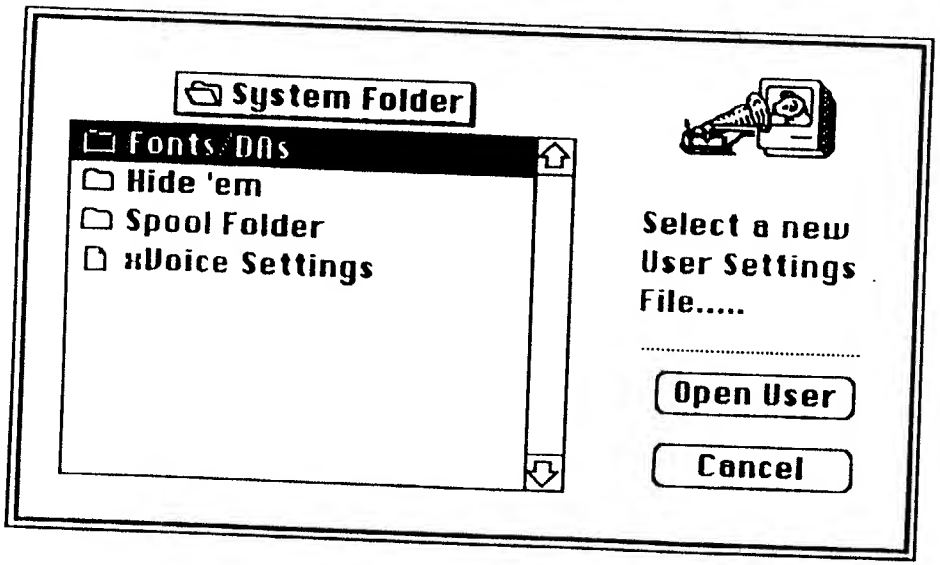

System Folder
Fonts/DAs
Hide 'em
Spool Folder
xVoice Settings
Select a new
User Settings
File.....
Open User
Cancel

FIGURE 88

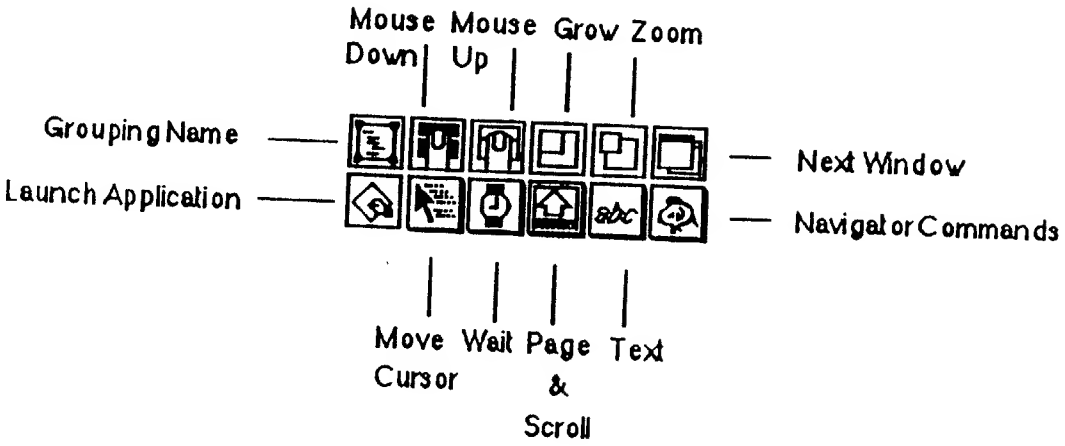

Mouse Down
Mouse Up
Grow
Zoom
Grouping Name
Launch Application
Next Window
Navigator Commands
Move Cursor
Wait
Page & Scroll
Text

FIGURE 89